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ABSTRACT

Part of the Anthropology Curriculum Project, the document introduces social studies classroom teachers and junior high school students to the study of language and emphasizes the importance of language as a part of culture. The document contains a teacher background component and a student text. The teacher background material is presented in five chapters. Chapter I introduces the concept of communication, reviews the communicational relationship between sender and receiver, and defines communication terms. Chapters II and III discuss linguistics and grammar, focusing on the sounds and meanings of speech and meanings of linguistic vocabulary. Chapter IV explains how the study of the history of language helps anthropologists understand culture. The final chapter explores the relationship between culture and communication. The student text focuses on five topics, each of which is represented by a chapter--"All Men Have Language," "How Language Affects Our Lives," "The Nature of Language," "How Scientists Study Language," and "Languages are Always Changing." For each topic, information is presented on activities, vocabulary definitions, discussion of key concepts, tabular representation of concepts, and background information. Activities involve students in role playing, class discussion, defining terms, interpreting sounds, making tape recordings, library research, and deciphering simple linguistic codes. (DB)

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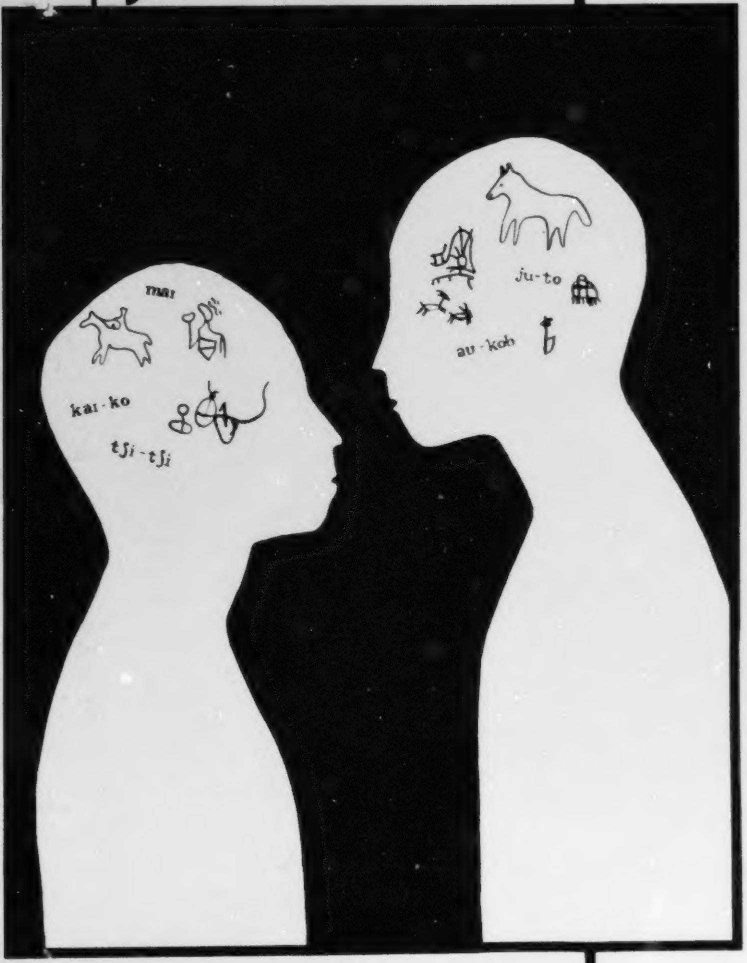

Language

Anthropology and Communication

by Alexandra Ramsay

Consultant in Linguistics

Thomas A. Sebeok

Publication No. 45 / Teacher Background Material

Anthropology Curriculum Project / University of Georgia / Athens

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Experimental Material, 1968

To be used in connection with "A Sequential Curriculum in Anthropology for Grades 1 - 7."

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Parallel Material

Language, Pupil Text, by Albert J. Kingston and Marion J. Rice, Publication No. 44, Anthropology Curriculum Project, University of Georgia.

Record Narration of Foreign Languages and United States Dialects, recorded by native speakers, Publication No. 47, Anthropology Curriculum Project, University of Georgia.

ERRATA SHEET
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Language: Anthropology and Communication

July 23, 1968

Page	Paragraph	Line	Correction
i	3rd	6 f.b.	minofold = manifold
	3rd	last	repetoire = repertoire
15	2nd	12 f.b.	sounds {s} and {s} = sounds {s} and {š}
	2nd	11 f.b.	"then" {0} and the unvoiced "th" {0} = "then" {ð} and the unvoiced "th" {θ}
16	1st	2 f.t.	onion or canyon and {n} = onion or canyon) and {ŋ}
	2nd	3 f.t.	plus {s} = plus {š}
	2nd	4 f.t.	{c} = {č}
	2nd	last	plus {z} = plus {ž}
	2nd	last	{j} = {ǰ}
17	1st	first	front low, {a} is = front low, {ɛ} is
	1st	6 f.t.	phonetically {a} = phonetically {ɑ}
18	1st	5 f.t.	diphthong {w} = diphthong {aw}
19	4th	2 f.b.	(el-um, for "elm), = (el-um, for "elm"),
22	4th	4 f.b.	with a very long = with a long
24		3 f.t.	c "chin" = č "chin"
		4 f.t.	j "gem" = ǰ "gem"
		5 f.t.	o, s "thin," "sod" s "shove" = θ, s "thin," "sod" š "shove"
		6 f.t.	o, z "then," "zip" z "rouge" ð, z "then," "zip" ž "rouge"
30	2nd	3 f.b.	ending in /c/ /j/ or / = ending in /č/ /ǰ/ or
	2nd	2 f.b.	/s, s, z/ or /z/. = /s, š, z/ or /ž/.
31	2nd	10 f.t.	except /s, s, z, z/ = except /s, š, z, ž/
	2nd	11 f.t.	affricates (/c/, /j/), = affricates (/č/, /ǰ/),
33	1st	6 f.t.	Jarh (year) = Jahr (year)
44	1st	first	with {c} changed to {s} = with {č} changed to {š}
	2nd	last	the donor." = the donor.
46	3rd	last	contains Afrikaan, = contains Afrikaans,
48	3rd	3 f.t.	the bushmen = the Bushmen
49	5th	5 f.t.	from Mada = from
53	left side	7 f.t.	Swisss = Swiss
55		3 f.b.	and Row, = and Row.
68		4 f.b.	Semoitics = Semiotics
		last	Press 1965. = Press. 1965.

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introduction

In the opening round of the guessing game known to American children as Twenty Questions, the inquiring player first tries to discover whether the object to be guessed is 'mineral' or not. If the answer is negative, it follows that it must pertain to the organic world.

Let us consider what property distinguishes both 'vegetable' and 'animal' from objects of the inorganic world. The one essential characteristic of living systems, which all plants and animals share, is *reproductivity* -- of the whole organism or at least of its constituent cells. What does it mean to say that living things reproduce? It means that genetic information is transmitted through time, from generation to generation, and that this information is translated into action. Biologists are gradually deciphering the so-called language of life: they already understand the vocabulary of the genetic code (if not yet its grammar). The vocabulary consists of sixty-four distinct code words, three of which signal that the message has come to an end, in the manner of punctuation marks, as it were.

The transfer of molecular information is but one of the ways and forms of communication employed by living organisms. Language, as the other modes of human communication that it underlies, functions to overcome distance and thus to establish and maintain spatial continuity among us. Although its surface structure may vary considerably in space (as different languages) and mutate thoroughly in time, the verbal code is a universal as well as exclusive possession of mankind. Language differs crucially from the minofold signaling devices used by speechless creatures because of its combinatorial *productivity*: this term refers to the unending capacity, uniquely human, to formulate and comprehend novel utterances; by contrast, animal communication systems, determined as they are in far lesser degree by learning, are made up from a definitely finite and usually quite small repetoire of signals.

Communication is a central problem in the science of life, as it is in the sciences of man, that is, anthropology. The various branches of biology are concerned with molecular messages and with the different systems of animal communication, as well as with the biological foundations of language. Linguistics is concerned with the phenomenon of creativity as manifested in verbal messages, but human beings also circulate messages that are not couched in language -- goods and services, for instance, and (in the view of one of the most famous contemporary anthropologists) women. Linguistics, economics, and kinship studies, therefore, are really subdisciplines of the same field of social anthropology. Culture can be said to consist of these basic forms of communication and of the rules that state how they operate. Of the three, it is language, however, that is at once the instrument and the model for all the 'games' of communication on the cultural level, for all the rules of economic and social behavior can be and are stated verbally.

Miss Ramsay's clear and incisive manual deals chiefly with those aspects of human communication which are properly linguistic, as she discusses some of the principal rules of language. However, she has wisely placed her discussion in the wider cultural context in which the flow of verbal messages occurs. It then becomes a matter of taste whether the reader whose interest is captured by this book will choose to develop his studies by examining more closely the structure of the verbal code as such, or the behavior of language-users (speakers and listeners) in everyday social life. Either is an exciting adventure.

May 1, 1968

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communication

Human existence and human society depend on language. No normal person is without this faculty, and no other species is known to possess it. A society is a group of people that shares a way of behaving, a culture. Part of every society's culture is its language, also shared. The cooperation that makes human society possible is almost wholly dependent on the facility with which we communicate.

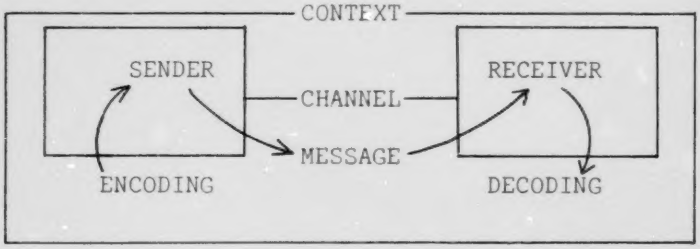
It is not only human society that depends on communication (although it is the only society to use language). Animals must also engage in subsistence activities, find a mate, avoid hostilities and predators, and, in some species, defend property and raise their young. All animals enter at some point in their lives the communication process. The so-called "solitary" animals, such as tigers or dragonflies, in order to reproduce their kind must communicate their existence. More specifically an animal must communicate that it belongs to a particular species, its sex, and the fact that it is in breeding condition. Even when the individuals of a species do not confront one another in reproduction, and egg depositing and fertilization are isolated events, we still say that communication has occurred. In fact, the genes communicate information to the organisms of succeeding generations.

Now the question arises: just what is communication? What is it that speech, writing, bird song, a smile, and a stop sign have in common? An act of communication is a process. The idea of process implies that changes take place; thus communication is an event that occurs over time, with definite isolatable stages. It can be viewed as a transaction, an exchange between two end-points, the sender and the receiver.

A communication event, among animals as well as man, has several stages. At the first stage, the sender selects a message. The message is "about" a chain of happenings in the nervous system of the sender. Light waves, sound waves, tactile impressions, odors, tastes, all have come into consciousness by transformation into electrical impulses and transmission to the brain. Or, alternately, a memory, genetic or otherwise, stored in the nervous system in the form of electric and chemical patterns is selected by the sender for transmission. A personal, internally experienced neurological event is to be shared with another organism.

At the second stage the message is encoded by the sender. That is, the message is put into a form that allows it to be received (and, incidentally, transmitted through the channel selected). A single message can be coded in a number of ways. The linguistic code produces the series of sounds that are represented in writing as "I'm hot," while the code used by a dog will render the same message by visual means: the dog pants and protrudes his tongue. A human can utilize a code in the visual channel in place of, or to supplement, the verbal message "I'm hot." He will wipe his brow or fan himself.

At the next stage, the third, the encoded message travels via a channel (sound, touch, vision, etc.) to connect the sender with the receiver. The receiver is someone who can decode the message, i.e., who can understand it. Existing over the whole period of the event just outlined is the context, the situation in which the communication takes place. Someone saying "please!" may mean either "please don't" or "please do" depending on the context of his message. The role of the context is an important one. It can make the difference between a church service and a political speech. The same message, encoded in the same way, may have completely different meanings in different surroundings.



The communicational relationship between the sender and receiver exists because they share a code. Humans or animals who do not share a code cannot communicate. If you do not know the linguistic code called French, you cannot decode a linguistic message from a Frenchman, nor can you encode a message for him. If you do not share the code of cats which says that flattened ears denote aggression, you will not receive the message "I will attack!" and may be scratched. Similarly, goats and sheep cannot fight; they do not share a code to enable them to exchange hostilities. The sheep does not respond to the threats of the goat. There are, of course, examples of inter-species codes. Many animals will react to the warning cries of another species by taking cover or fleeing.

A code is a set of rules, a system of signs and rules for their organization. When a sender encodes a message, he follows the rules that will allow the receiver to decode the same message using the same set of rules. A code is an agreement; the first rule of the agreement states what the following rules are about, i.e., about a set of signs.

There are only two basic kinds of codes, analog and digital. Analog coding of messages is of the "more-or-less" variety, and uses the variables of intensity and length to convey information. The relation between the message and the code, in this case, is a parallel one. For example, the increase in speed with which a dog wags his tail reflects an increase in the intensity of the sentiment he is expressing. Also, the more aggressive a chimpanzee, the louder and longer will he scream. The majority of animal communication systems are analog in their coding, as is non-verbal coding in man. For example, the loudness of an audience's applause is is in proportion to its appreciation of a performance.

Digital coding has been called an "on-or-off, yes-or-no" system. Here the message is realized by presence and absence of energy, by a pattern. An example from the animal kingdom is the coding system of fireflies. A firefly is either flashing or not flashing. Experiments have shown that the brightness of the flash has no communication value, except for entomologists. The frequency with which fireflies flash increases as the temperature rises. The message is decoded via the pattern of flashes and non-flashes (or darkness). No matter how much the rate of the flashing may increase, the pattern, or ration of flashes and intervals, remains a constant, and thus guides a male to a female firefly. A digital system consists of discrete units of energy, of light, touch, electrical impulses, or sound organized serially in time. Humans have made use of the firefly principle. The beacon atop a lighthouse revolves at a set rate, giving each lighthouse a characteristic pattern of bright and dark cycles, so that small boats may not mistake one lighthouse for another and run aground.

Language is also a digital system, only more complex than fireflies or lighthouses. Briefly, for the moment, we can illustrate by saying that, for example, in English the sound "b" is always heard as a "b." In a word, there is either a "b" or there is no such sound; it cannot be half there. Messages are encoded by patterns of discrete sounds.

This is an oversimplified example. The binarity of language should become more apparent as we progress.

The encoded message, or as it is sometimes called, the signal, can travel to the receiver over a number of different channels. One is the channel of actual physical touch, the tactile modality. Examples from our own species include the tap on the shoulder, a pat on the back, or a parent's spanking a child. In western society we use one form of tactile communication every day -- the handshake. In animals other than man, tactile communication is important for species that live in close contact (obviously it is useless over distances, when the individuals are physically separated). Tactile communication is an advantage in a situation when the sender and receiver wish to communicate silently in order to keep their whereabouts unknown to possible predators. Some organisms use only tactile signals; they have feelers and antennae by which they feel their way through life. In humans the skin serves as both a transmitter and receiver of messages. It is the first form of communication to which an infant responds.

In fact, tactile awareness occurs early in fetal life. An infant responds to internal tactile patterns by coughing, sneezing, and swallowing. Later he communicates with himself by feeling his own body, exploring shapes and textures with his mouth and hands. This communication with the self, by definition, occurs when the sender and the receiver are the same individual. Still later in human life, particularly in the affective domain, the tactile modality can communicate more effectively than speech. It has been pointed out more than once that "words fail" when one attempts to console a bereaved person.

The variety of tactile contacts permitted between people are circumscribed and outlined by each culture. Every culture has a well-established code for tactile communication.

There is also communication by visual means. First there are the visible movements of some portions or of all of the sender's body. For example, a human will point, wink an eye, nod his head, shrug, smile or scowl. A cat will walk stiff-legged, his fur fluffed and with his back arched. A goose will stretch his neck and open his beak in a threat. Also in the visual modality are changes in an animal's coloring, changes that may be swift and transitory like a chameleon, or that may last over a breeding season. Another use of the visual modality is in the rearrangement of materials in the environment. An angry chimpanzee will brandish or throw a stick. A bear will mark trees with his claws to indicate his passage to other bears. A male bowerbird constructs an ingeniously decorated nest to communicate to passing females that he is an available bachelor. Humans have an elaborate set of visual material messages, that include sculpture, painting, architecture, writing, uniforms, traffic signals, and advertising.

Yet a third channel employed in communication is the auditory one, that of sound. The sounds made by animals are of two types: vocal and non-vocal. Human speech is, of course, of the vocal variety, sounds being produced by modifications in a stream of air as it travels from the lungs to pass through the larynx and mouth. Vocal sound seems to be a speciality of birds and mammals; it is observed in its most elaborate forms among them. Non-vocal sound refers to the pulsed vibrations of air set up by means other than those of the organism's breathing and eating apparatus -- for instance, the stridulation of crickets, the sound of the rattle of an alerted rattlesnake's tail, or the growling of one's own stomach.

It might be thought that the closer an animal is to man on the evolutionary scale, the more it will rely on vocal communication. Nothing could be further from the truth. Birds are quite distant from man, yet they produce vocal sounds that are subjectively identical to those of humans. One has only to hear a well-trained parrot or mynah bird to agree. But, they possess nothing like the mammalian larynx, tongue, or teeth to explain the phenomenon on a physiological basis.

Still more puzzling, our closest relatives in the animal kindgom, the monkeys and apes, cannot produce anything resembling speech, although there appears to be no gross anatomical reason why they cannot. Even through patient teaching an ape will not be able to master a string of meaningless (to him) human sounds, something that a bird will do readily enough. (It might be well to point out that the mimicking bird does not use language, but only repeats sounds.) In fact, for the gorilla and probably for the majority of other primates, vocal communication, although elaborate in number of discrete messages when compared to other non-mammalian species, is not used as much as other channels. The visual or tactile signals play a greater role in the everyday life of the group.

Neither the anatomical apparatus for producing vocal sound nor the ability to mimic human sounds is of significance in tracing the evolution of speech. Instead, the complexity of man's brain is responsible for his use of language. Language is not inseparable from vocal sound -- witness writing. It is the complex organization of the code (not the channel) that sets language apart from other systems of communication. The origins of language are not found in the ability to produce vocal sound.

Still a fourth channel for signals to pass through is the chemical. In contradistinction to vocal messages, their use is limited in humans, but pervasive in the communication systems of lower organisms. A code in chemical form transmits genetic information in all species. In humans and higher animals chemical messages are sometimes designated as taste or smell, or nearby reception or reception at a distance, respectively. A feature of a chemical system is that a message persists in the channel. The receiver does not have to be immediately present to act as the destination. This allows an animal to leave messages behind him in time and space. He does not have to "be on the scene" to communicate.

It is for this reason that the majority of animal territory and trail markings are chemical. The animals (such as the bear already mentioned) which use visual means to mark trails are in a minority. A chemical sign, by its very nature, is much more efficient for this task. Odors contain more information, in the same context, than the claw marks of the bear. The chemical sign

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fades at a fixed rate, and so the receiver can tell how long it has been since the message was broadcast. This additional information may influence his subsequent movements. If the chemicals are fresh, the information contained therein has a high value; if old, he may not take the message quite so seriously. An ant will lay a chemical trail with a special gland at the rear of his body, from the source of food back to his nest. Other ants will then follow the trail backwards to collect the food. An old, weak trail will indicate that there is not much left to forage at its end. Many mammals have special scent glands which they rub on rocks, trees, and other surfaces to outline the area they will defend.

The chemical messages of wolves are many. Earnest Thompson Seaton has written:

> incredible as it may seem at first sight, there is abundant proof that the whole of a region inhabited by wolves is laid out in signal stations or intelligence posts. Usually there is one at each mile or less, varying much with the nature of the ground. The marks of these depots, or odor-posts are various; a stone, a tree, a bush, or buffalo skull, a post, a mound, or any similar object serves, providing only that it be conspicuous on account of its color or position;... There can be no doubt that a newly arrived wolf is quickly aware of the visit that has recently been paid to the signal post -- by a personal friend or foe, by a female in search of a mate, a young or old, sick or well, hungry, hunted or gorged beast. From the trail he learns further the directions whence it came and whither it went. Thus the main items of news essential to his life are obtained by the system of signal posts.[1]

A human is not very good at decoding chemical messages, even from his own species. Dogs, however, can identify individual humans by their olfactory signals and also a number of human emotions as they are encoded in perspiration. Even with those chemical messages that humans use deliberately, perfumes, the end-result is to draw attention to messages in the visual channel.

There are two other channels that are known from observations and experiments in the animal kingdom: the electric and the thermal. There may be even more that we are not aware of, since any form of energy can be used to encode and transmit a message. A fish called Gymnarchus, who lives in African rivers, generates an electric field around himself. He can sense, via distortion in the field, any object intruding into this territory. Other organisms entering the field can be distinguished. Intruders will be attacked; the fish's mate will not be.

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[1] Life-Histories of Northern Animals: Account of the Mammals of Manitoba, p. 772. New York, 1909.

Our ability to receive messages from animals depends ultimately on our sense organs, or extensions of them, such as sensitive microphones. Every channel has associated with it a sense organ on the receiver side and one or more means of production on the sender's end.

In speech the channel is sound. This has five advantages. 1) No direct line between sender and receiver is necessary; sound can travel around corners and through objects. 2) It can be used whether or not the sender and receiver are visible to one another; it can be used in the absence of light. 3) It is flexible; sounds do not persist, but can be rapidly altered. 4) Speech requires very little energy for its production and transmission. 5) It frees the rest of the body, including the hands, to do other things simultaneously.

Redundancy is an important part of every signal. If it were not for the repetition and reduplication inherent in a message, much of the information it contains, its meaning, would be lost in transmission. Extraneous sounds, sights, or smells would impinge upon it to the extent that its reception would become garbled. A signal must be strong enough, either through the amount of energy it uses for transmission or through the amount of redundancy it employs, to overcome the noise (as the extraneous elements are called) of the environment (in this case, the channel). Every message at the receiver's end consists of signal plus noise. One seldom receives a pure message exactly as it was transmitted. The most economical and least taxing way of overcoming noise is to increase the redundancy of the message. This can be done either of two ways: first, by repeating the information-carrying elements of the message within a channel, and second, by employing two channels for the same message simultaneously.

The measure of the redundancy of a code is the fraction which can be randomly deleted without making the message unintelligible.

FR EXMPLE, WENTYIVE PRCET OF HE LTTERS I TIS SENTENCE HAVE BEN DLETED AT RANM.

All languages are about 50 percent redundant. We also speak about redundancy in the use of two simultaneous channels for the same message; one channel can be filtered out and the other will come through. Of the various modalities of communication accompanying speech, the visual, or more precisely the gestural, gives a good example of channel redundancy. If the man who transmits the linguistic message "I'm hot" is standing in front of a picture window, the receiver on the other side of the glass may not hear him distinctly. Yet his fanning himself would convey the same message, but by the visual channel. The receiver might very well be able to receive the linguistic message by visual means. He could read his lips. The movement of the facial muscles during the production of speech is also a form of channel redundancy. It is a significant one for the deaf and blind-deaf, who decode speech movements by tactile means.

If redundancy furthers the reception of messages at their destination, another process, feedback, advises the sender on how his message has been received. We have seen that communication is the transmission of messages from one point to another, a linear process. Feedback is circular: the signal sent out is responded to in order to correct what is next sent out. One familiar feedback "cause and effect" device is the thermostat. The reading of the thermostat's thermometer depends on the warmth of the room, and the warmth of the room also depends on the reading of the thermometer. Each is a cause and effect of the other. In other words, the signal S sends to R is largely determined by the signal R sends back to S -- feedback serves to influence and correct the signals sent forward.

A sender usually also receives direct feedback from his own output. Man, for example, normally hears his own message and corrects a slip of the tongue. He also receives kinesthetic feedback: he feels his message through the movement of his muscles and through bone conduction. A bat or porpoise can scan the environment by feedback, the echoes of his own acoustic signal.

People react to the feedback of their own messages when they exclaim, immediately after uttering something, "No, what I really meant to say was...." Besides the effect of the message on ourselves, we are fed back the effect on the receiver. A human communicator is getting feedback, the information that his message has been received with a certain effect, when his patient listener intersperses his monologue with "yes," "of course," "I understand," or when he nods his head in agreement. A performer receives feedback through his audience's applause, which stimulates him to send more messages: an encore. A sender becomes uneasy in the absence of feedback, and will ask for it. "Did you hear me?" or "Understand?" are two familiar ways of requesting communication feedback.

Feedback makes sender and receiver truly interacting members of a communication network. Through communication, including feedback, people influence one another's behavior. Since the response to one message often effects or controls the next message to be sent, feedback is an important concept in understanding human communication.

Anthropology and Communication. Anthropology, the science of man, is concerned with the study of the many cultures man has created. The anthropologist is concerned with what a culture encompasses, how it functions, and what relationship it has to the individual who lives in it. Anthropological investigation focuses on both the surface diversity of culture and its underlying universal characteristics. In both these areas anthropological concepts are essentially concerned with communication.

Man is everywhere basically the same. He makes and uses tools; he possesses language. He lives in families and reckons kinship; he recounts myths and tales; he creates art and music. The incest taboo that is realized in family units is based on communication, since the incest rule is learned via language. Also, kinship reckoning, which allows the identification of the tabooed individual, is a verbal accomplishment. Myth and religion exist only through communication, as do art and music.

The surface diversity of cultures stems from variations on these cultural universals. They also derive from those traits that do not boast a universal distribution, such as pottery or agriculture. The distribution of present-day traits that set one culture off from another is a problem in communication, i.e., a problem in the diffusion of objects and ideas through contact between peoples. In another area of anthropology, archeologists reconstruct the histories of defunct nations and cultures by studying the pathways of material objects, such as trade goods, and technological processes, such as metallurgy. Through the evidence of skeletal remains or of present-day blood groups, physical anthropologists study genetic communication on a world-wide basis. The history of mankind, thus viewed, is basically a history of communication.

People in different cultures communicate in different ways. Communication is learned and shared; any learned and shared behavior is cultural. A Zulu learns to code messages like other Zulus, and an American learns to code like other Americans. When an anthropologist observes the life in a village, he is seeing who communicates with whom, using what code, about what, through which channels, in what situation. The codes and communication networks of a Zulu warrior and an American truck driver constitute differences in culture. When culture changes, so do the elements of communication. Change the elements of communication, and a difference in culture is effected. Indeed, anthropology can be and has been defined as the study of man's communicative behavior.

The anthropologist has to deal with some communicative events in which only one participant, the sender or the receiver, is real to the observer. An example is prayer. Whether the addressing of messages to dead ancestors in one society or to a Judeo-Christian God in another is communication or not depends on whether some person believes the imputed receiver to be capable of communicating, or of providing feedback in some form. Besides the example of prayer, an instance of the culturally defined receiver comes from the Ojibwa Indians of the Great Lakes Region. A man and woman are sitting in their tent during a storm:

> There was one clap of thunder after another. Suddenly the old man turned to his wife and asked, "Did you hear what was said?" "No," she replied, "I didn't catch it." ...It was, of course, the thunder. The old man thought that one of the Thunder Birds had said something to him. He was reacting to this sound in the same way as he would respond to a human being, whose words he did not understand.[2]

The relation of the anthropologist to the human process of communication has been stated in the following way:

> In any given culture or community, behavior, and objects as the products of behavior are selectively organized, used, attended to and interpreted as communicative. Any behavior and object may be communicative, and the range that does serve communication in a given case is far greater than our common focus on speech reveals. Rules of proscription and prescription constitute communication a system in the community, by providing that it is not the case that anyone can communicate in any form by any channel in any code in any setting of time and place.[3]

Summary and Conclusions

Communication pervades all animal life, including human life. Communication is a process which takes place in time, involving several stages. Communication transfers information from one animal to another (inter-organismic communication) or from one part of an animal to another part of the same animal (intra-organismic communication). Communication need not be purposeful; therefore, the notion of intention is not useful in the study of communication.

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[2] A. L. Hallowell, "Ojibwa Ontology, Behavior and World View." In Culture and History: Essays in Honor of Paul Radin, edited by Stanley Diamond. Columbia University Press, New York, 1960. p. 64.

[3] Dell Hymes, "The Anthropology of Communication." In Human Communication, edited by Frank E. X. Dance. Holt, Rinehart and Winston, New York, 1967. p. 29.

A social group, as of ants, is sometimes compared to a single organism because of the way communication enables the parts to function together as a unified whole. Any society depends on communication, but human society depends on language. Language is only one way of communicating.

Communication consists of these factors: Sender, receiver, code, message, channel, and context. The code makes it possible to communicate. The code consists of a set of rules about signs to be used by sender and receiver. Codes are of two types: analog types, which function on a "more-or-less" basis, and digital, which function on a "yes-or-no" basis. Language is digitally coded.

Animals, including humans, may use a variety of channels to communicate: tactile, visual, auditory, chemical, electrical, and thermal.

Human existence and human society depend largely upon language to communicate. In human speech the channel is sound.

Redundancy is an attribute of the code or message, increasing the probability of any particular message being received. Redundancy (some form of repetition or reduplication inherent in the message) is essential to insure transmission. A signal must be strong enough, either through the amount of energy it uses for transmission or through the amount of redundancy it employs, to overcome the noise of the environment. Noise is any extraneous element which might interfere with or distort the message. Every message at the receiver's end consists of signal plus noise.

All language is about 50 percent redundant, employing repetitive elements in its structure.

Feedback advises the sender and the receiver that messages have reached their destination.

Anthropology in its physical, historical, and ethnographic aspects deals with communication. People in different cultures communicate in different ways. Communication, like culture, is learned and shared. The codes and communication networks of one culture differ from those of other cultures.

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Chapter 2

the verbal code: phonetics and phonemics

Linguistics is that branch of anthropology that studies one form of human communication, language (the code), and its manifestation in speech (the message). It is useful to think of linguistics under three headings -- phonology, syntax, and semantics. Any of these branches can be studied from the historical point of view, that of language change, or from the point of view of the language system at one moment in time.

Language is universally realized in sound. In a smaller number of societies it also exists in written form. Phonetics is that division of phonology which studies speech sounds in their physical aspect. Phonetics can be studied at three stages. Speech can be observed in its production stage, at the stage when it takes the form of the sound wave, or at the perception stage. The first is called *articulatory phonetics*, which describes and identifies the physiological production of sound. The second is *acoustic phonetics*, which describes the physical properties of sounds in the channel. The third point of view, that of perception, is labeled *psycho-acoustics*. The point of view to be treated in detail here is that of production.

When a phonetician is writing about speech sounds--phones--he indicates them by enclosing them in brackets: { }. Within the brackets he uses a phonetic alphabet, which, by international agreement, is a set of rules equating written symbols with specific sounds. Thus {i} will always have the same meaning to a linguist. This is the vowel in the English word "bit," not at all the same as the sound of "i" in the word "bite." Many of the phonetic symbols used here are the same as letters in the English alphabet. Sometimes they have the same value as the English letter; often they are different. In some cases the symbols may be unfamiliar to a non-linguist. The important thing to remember is that bracketed symbols always have the same value. When a symbol is introduced, its value will be given by an example from English where possible.

Articulatory phonetics studies the speech event from the production stage, that is, it describes the so-called organs of speech and their movements. It is these movements and their resulting vibration of the air that we perceive as sound.

Among the organs which are responsible for producing the sounds of speech are the lungs, which act as a bellows. As we breathe, air is expelled from the lungs. In its passage from the lungs out through the mouth or nose, the stream of air can be modified in a number of ways to produce sounds. Many of the sounds we can produce with our "speech organs" are never used in language. The speech apparatus, which consists of organs for respiration and eating, is capable of making an infinite variety of sounds, but any one language uses only a small number of these. In fact, all languages taken together still do not utilize all the sounds a human is able to produce with his vocal tract.

From the lungs, which furnish the air current, the breath passes up the windpipe to the larynx, or Adam's apple. The larynx is a cartilaginous box which is responsible for most of the sound energy used in speech. It contains the vocal cords, two bands of muscle and ligament. During breathing, the cords enclose a triangular space leading on one side to the lungs, on the other to the throat and mouth. This space, the glottis, can be closed by moving the muscles which control the vocal cords and bringing them together, or the muscles can contract the open cords and make them vibrate, thus producing voice. From an articulatory point of view, the production of voice depends on the vibration of the vocal cords. We can divide the sounds of all languages into two large groups, depending on whether they are made with the participation of the larynx or not. All vowels and some consonants are voiced. Other consonants are voiceless, that is, the vocal cords do not vibrate. For example, if you put your hand on your larynx and then produce a {v}, as in "vim," you can feel the vibrations. You can't feel them if you pronounce an {f}, as in "fill." The same difference occurs with the pairs of sounds {z-s}. The first consonant is voiced; the second is not. Yet, as we shall see, they are alike in every other respect.

Besides its role in the production of voice, the larynx has a biological function, that of a protective valve for the lungs. The area above the larynx and below the mouth, the pharynx, serves biologically both as a food canal and a respiratory canal. The larynx moves upwards during swallowing, guiding food away from the lungs and into the passage which leads to the stomach. In its role as guard of the respiratory tract, the vocal cords can close and then suddenly open in an explosive manner, releasing the trapped air in the lungs in one burst. This serves to expell any foreign matter from the lungs, and is what happens in a cough. Some languages have a sound that is produced in the same way as a cough, but less violently. The glottis opens suddenly to let the air from the lungs escape in an explosion. This sound, the glottal stop (so named because the air is stopped momentarily in its passage), can also be heard in English in the pronunciation of the utterances "oh-oh" or "Virginia apples." Here the glottal stops occur between the words. Phoneticians write the glottal stop {ʔ}, a question mark without the dot. The glottis can also be narrowed to a slit to constrict the passage of air. This produces a sound, {h}, which we have in English, but which many other languages, such as Italian, do not have.

After the air leaves the larynx, it passes through the pharyngeal cavity and the mouth. The pharynx extends from the root of the tongue down to the larynx: its walls are flexible, and its shape can be changed to aid in the modification of the air stream. From the pharynx the air usually passes through the mouth which can change endlessly in shape and volume because of the great mobility of the tongue. From the pharynx the vocal air can also leave the body through the nose. The back part of the roof of the mouth, the soft palate, is movable and can close or open the entrance to the nasal chambers. The pharynx and the mouth are in reality one complex mechanism. The positions of the tongue, extremely important in the articulation of the majority of consonants and all the vowels, are reflected in the shape of the pharynx. We can therefore say that the pharynx acts in conjunction with the tongue.

When the stream of vocal air reaches the mouth, it must pass over and around the tongue. The tongue, like the glottis, can hamper the passage of air, allow it to escape with relative ease, or arrest the stream completely for a moment to produce a sound of the stop variety. To accurately describe the production of these types of sounds phoneticians separate the tip of the tongue, the blade, and the back. An articulation can be made against the roof of the mouth by any one of these parts of the tongue. Whether one or another part of the tongue touches against the teeth, the gum ridge, or the hard or soft palate is distinctive in speech. The sounds of the {d} type are usually made by pressing the tip of the tongue against the gum ridge, and then releasing the stream of air, which is voiced. The sounds like {t} are made in exactly the same fashion, without the production of voice. Farther back in the mouth, {g} and {k} sounds are made by releasing the back of the tongue from the soft palate, with voicing added and without voicing, respectively. {d}, {t}, {g} and {k} are all stops: the air is completely blocked for an instant. When the tongue restricts the passage of air through the mouth, we perceive hissing sounds {s} and {s} ("sh") a hushing sound, as well as the voiced "th" in "then" {o} and the unvoiced "th" {o} in "thin" This mode of articulation is called *fricative*; there is friction because the passage for the air is narrowed. Other fricatives in English are {z}, {ž} (pleasure), {f}, {v}. There are several different types of trilled "r" sounds, one produced by the trilling of the tongue, another by the movement of the *uvula* (the fleshy protrusion hanging from the soft palate) against the back of the tongue. In American English neither of these two "r"s occur, but the uvular {r} is prevalent in France and Germany. What is written in America as "r" is, phonetically, a vowel of a special type, and will be described with the other vowels.

Nasal consonants, {m}, {n}, {ñ}, (as in some speakers' rapid pronunciation of onion or canyon and {n} (as in king) are stops from the point of view of the mouth, since the soft palate is lowered to stop the air from entering the mouth, but a non-stop if we consider its free passage through the nose, which gives it a characteristic resonance. An {m} is really a {b}, a voiced stop produced by the lips, but with the soft palate lowered. The sound {n} corresponds to {d}, with the addition of nasality.

Affricates are a combination of stop and fricative. An example is the initial consonant of chair and child, actually {t} plus {s}, which is written phonetically with the special symbol {c}. Another affricate is the beginning sound of John or jam {d} plus {z}, and written phonetically {j}.

All of the above mentioned changes in the current of air may be accompanied by either a neutral position or a rounding of the lips. The {k} sound in "cool" is rounded, that is, the lips are thrust forward to form something like a circle. This {k} is phonetically different from the {k} sound of "key." Vowels can also be rounded or unrounded.

Every consonant may be phonetically defined according to its *mode of articulation* and its *point of articulation*. A distinction is made between consonants with a complete closing, called stops, and other consonants, the trills, laterals, fricatives, nasals and affricates, which are produced when the air passage is narrowed. Stops may be voiced or voiceless. Thus {p} is a voiceless stop as to its mode of articulation. It is bilabial (both lips touching) according to its point of articulation. The consonant {t} is also a voiceless stop, but differs in its point of articulation in that the tip of the tongue touches against the gum ridges. The sound {f} is a "labio-dental" fricative. The lower lip touches against the back of the front teeth to constrict the air stream.

In describing the positions of the tongue we have covered, briefly, only two of the possibilities: the stopped air current and the constricted air current. The third type, where sounds are produced with a free passage of air, are vowels. The volume of the pharynx and mouth is changed by the position of the tongue. For example, the position of the tongue for the {a} of "father" is almost a flat one. With the tongue in this position, the volume of of the mouth and pharynx are almost equal. If we start from {a} and change the vowel to {e} "bet" and then {i} the tongue rises in the mouth towards the hard palate. As a result the volume of the mouth decreases while that of the pharynx increases. The series of vowels {a}, {ɛ}"add," {e}, {i} is called *front* because the tongue moves forward from a flat position. The vowel {i} is a *front high* vowel: the tongue is both forward and high in the mouth. The sound {a} is then *front low*, {a} is *mid-low*, and {e}, logically, *mid-high*. The series of *back vowels* are made by the retraction of the back of the tongue towards the soft palate. As a consequence, the mouth cavity becomes larger than the pharynx, with resulting changes in the sound. The *low back vowel*, written phonetically {ɑ}(in some American English varieties of "hot" and "not"), changes through {ɔ}("ought") to {o} ("go") to {u} ("do"), the *high back vowel*. As in the front series, the intermediate positions of the tongue are labeled (back) *mid-low* and *mid-high*. In some languages, and English (in some dialects) is one of them, are *central vowels*. The back of the tongue moves towards the center of the roof of the mouth, towards the place where the hard and soft palates meet. These vowels, too, can be classified as high or low.

It is not necessary to use the back of the tongue to articulate vowels, although most are made this way. The tip of the tongue is capable of rising towards the arch of the mouth, giving the tongue a hollow shape. This is the vowel sound that is represented in English writing as "r."

	Front	Back
High	i "bit"	u "do"
Mid-high	e "egg"	o "go"
Mid-low	ε "add"	ɔ "ought"
Low	a "alms"	ɑ "odd"

VOWELS OF CHICAGO ENGLISH
(Chart does not include vowel {r}, as in {brd}, "bird.")

The three series of vowels, front, back and central, can be altered by the addition of a third resonance chamber, that is made when the lips are protruded and rounded. If the tongue is in the position for {i}, and at the same time the lips are rounded, a new, different sound, written phonetically {ü}, is produced. This sound, and other rounded vowels, are one of the things Americans have difficulty pronouncing in languages like French and German. They do not occur in English.

Vowels can be further modified by *nasality*, when the air escapes both through the mouth and the nose. The nasal cavities add resonance. Nasal vowels may occur phonetically in English, when a vowel is colored by a nearby nasal consonant (m,n). The nasal passage is opened in anticipation of the nasal consonant to follow, or left open for a moment after a nasal consonant. Only in French, Portuguese, and Polish, and some American Indian languages are nasal vowels independent *phonemes* and thereby distinguish meanings between two words (although this last is not the concern of the phonetician).

So far we have been discussing monophthongs, where one value is perceived when the vowel is emitted. Diphthongs change their quality during production, and are written phonetically to reflect this, with a combination of two or more symbols. For example "house" contains the diphthong {w}, "fine," {aj}, "boy,"{ɔj}, and "day," {ej}. Some languages, like French, have no diphthongs.

{aj} buy {baj}
{aw} bough {baw}
{ej} bay {bej}
{ij} bee {bij}
{juw} few {fjuw}
{ow} go {gow}
{ɔj} boy {bɔj}
{uw} do {duw}

DIPHTHONGS OF CHICAGO ENGLISH

One of the fundamental ideas in phonetics is that of the syllable. The sounds we have been describing are grouped in speech into larger units. No linguistic training is needed for a person to identify the number of syllables in an utterance. In fact, syllables exist in the babbling of infants, before they learn a linguistic code. Verses containing a set number of syllables are made up by children, who can also recognize a bad composition, one containing an incorrect number of syllables. The phonetician's interest in the syllable is the acoustic and physiological basis for this inherent human grouping of sounds.

The first point to be noticed about the syllable is that there is a contrast among the successive sounds, or stages of its composition. One part is louder and stands out. The most audible part of a syllable is its nucleus. There is no syllable without a nucleus, and no syllable with more than one nucleus. Traditionally, nuclei were thought always to be vowels, and the margins of the syllable, the less audible parts, were thought to be consonants (thus, the name consonant, something which sounds with something, and cannot sound alone.) This view is correct, in the main, although there are some consonants (for instance {l}, {r}, {w}, {j}) that can serve both as the nucleus of a syllable or as a margin.

The traditional idea of the syllable has given us a shorthand for describing syllabic types, where the nucleus is represented by V, and the margins by C. On the physiological level there are three factors which determine the shape of a syllable: 1) The compression of the chest muscles to force the air from the lungs upwards, 2) the passage of the air through the vocal tract, and 3) the arrest, release of the exhilation. This gives us four syllable types which can be diagrammed as follows:

1. # V #
2. # V C
3. C V #
4. C V C

C = speech sound, usually not a vowel.
V = nucleus, usually a vowel.
# = action of the chest muscles (silent).

These are the several different types of syllables found in the languages of the world. Some languages may use all the types in constructing words, some a few. There are languages which use no other principle than consonant followed by nucleus (CV) over and over again. Both C and V can contain more than one sound. V of the pure vowel type can be a diphthong, but if of the "consonant" type will have only one of these sounds.

As we noted, in traditional opinion the syllable always contained a vowel as the nucleus. Sounds other than vowels function as the loudest part of a syllable in some languages. In these languages, if we use the above definition, we are obliged to classify as a vowel any sound that plays the role of syllabic nucleus. The {r} of "krk," the Czech word for neck, is then a vowel, as is the {l} in English "little" or "bottle." We have to define vowels and consonants differently for each language. This is done, but not in phonetics.

The functional study of speech sounds within a specific language is a field of linguistics called phonemics. A speech sound that functions to differentiate meanings in words is a phoneme. Phonetics, as we have seen, is the description, acoustic and articulatory, of all human vocal sounds, whether they function in speech or not. A phonetician can describe a sound, acoustically and articulatorily, in any language. The phonetic classification of sounds given above applies to sounds on a world-wide basis. The linguist who works with phonemics, the functions of sounds, does not do so for language or speech, but for an individual language.

Each language has its own rules for grouping its speech sounds into syllables. In one language a group of sounds must be pronounced as a single syllable, in another as two. For example, a Japanese will hear a word like "film" or "club" with three syllables, and will pronounce it accordingly. His language has syllables that end only with V, and margins with two consonants do not occur. In some American dialects "film" is pronounced with two syllables, "fil-um." Other one syllable words ending with {lm} are also pronounced with two syllables (el-um, for "elm), because {lm} is not a possible margin in this dialect.

Acoustic phonetics, the study of the physical properties of the speech wave, has become a highly technical science following rapid advances in electronic equipment during World War II. Sound consists of waves which travel through the air and also, with different speed and facility, through water and solid material. A sound wave is created by the repeated movement, the vibration, of some body.

Vibrations may vary in a number of ways. The different types of vibrations result in the different sounds employed in speech as well as some that are not, such as coughs. First, sounds vary in basic *frequency* -- the number of vibrations per unit of time. In perceptual terms, this is the pitch of a sound. Second, they may vary in *amplitude*, the amount of energy present. We perceive amplitude as the intensity, the loudness of a sound. A third difference among sounds is a difference in *duration*, or length. And last, sounds differ in *timbre*, the number and strength of frequencies other than the basic one. Among other functions timbre is what distinguishes one voice from another, although each may have the same pitch (basic frequency) as in singing. Each of these properties of sound waves are analyzed in detail in acoustic phonetics, with reference to the sounds of speech.

From the phonetic point of view the sounds in a language are unlimited. There is a wide range of variation in the pronunciation of vowels and consonants by the same person from occasion to occasion (if he has a cold for instance), from individual to individual, and there are differences between men, women, and children's pronunciation. Vowels and consonants are colored by their many environments which consist of the sounds that surround them in the speech chain.

But of all the differences that may accompany pronunciations of a sound, they do not hinder comprehension. A phonetic analysis of the {p} of "pin" and the {p} of "camp" and the {p} of "spin" will show distinct differences, but an English speaker will hear them as the same sound. The {k} of "cool" and the {k} of "key" are also not identical phonetically. These sounds, the three {p}s, and the two {k}s, are each identical in linguistic function, however. Certain phonetic characteristics of the sounds of these {k}s and {p}s are important for identification, others are not. Each vowel and consonant, within a linguistic system, contains *distinctive features* alongside *non-distinctive* ones. The {p} of "pin" is heavily aspirated. There is a noticeable puff of air after its initial production. The {p} of "camp" has audible aspiration, but not as strong as that of "pin." The {p} of "spin" is not aspirated.

These facts are *non-distinctive* in English. The aspirated and nonaspirated {p} can be exchanged, and no difference in the meanings of the words occurs. In another language, the substitution of an aspirated {p} for an unaspirated one in a word would change the meaning of the word. In this case, aspiration would be *distinctive*. Similarly, the rounded {k} of "cool" can be exchanged for the unrounded {k} of "key," making no difference in meanings of the words. Rounding is not distinctive for English {k}.

Phonemes, the sounds that serve as functional units within a language, are written between slashes / /. The variants of a phoneme, its phonetic members, are indicated by brackets, { }, the notation used in the section on phonetics. While the value of a phonetic symbol is unchangeable, that of a phonemic one is defined by the language. A phoneme is a class of phonetically similar and non-contrastive variants.

The words phonetically similar and non-contrastive need to be explained in some detail. It takes a while for a beginner to understand what a phoneme is. There is a term that has to be learned first. It is environment. At this point the term non-contrastive should be clear.

The various {p} sounds, or phones, of English are phonetically similar. They sound similar and are generated by similar motions of the speech organs. To make certain that they do not contrast with one another, we must see if they occur in the same environment. If they occur in different environments, they do not contrast. The environments of the three phonetically similar English {p}s are indeed different. The three environments here are 1) at the beginning (initially), 2) at the end (finally), and 3) in the middle of a word (medially). The phone {p} occurs word initially in "pit," word finally in "camp," and word medially (neither initially nor finally) in "spin." The heavily aspirated variety of {p} occurs word initially. The heavily aspirated {p} occurs in the same environment in words like "pig," "pet," "pick," and "pigeon." The type of {p} with medium aspiration is found in word final position: "lip," "help." We can expect the {p} with no audible aspiration to occur medially, after {s}: "spit," "Spain," "spring."

These phones have other linguistic environments, too. If, for illustration, we say these are the only ones, we would have a case of mutual exclusiveness. A certain phone has exclusive use of a given environment. When such an environment exists, it is a foregone conclusion that the rightful phone will show up there. In terms of the three environments we mentioned, if the first {p} occurs only word initially and the second occurs never word initially, but only word medially or finally, then the two phones are mutually exclusive in that environment. The two {k} phones of English are also mutually exclusive. The rounded variant occurs only word initially before back vowels, the unrounded, word initially before front vowels.

Another kind of non-contrastive distribution is called free variation. We mentioned above that the variants of English /p/ can be exchanged in words, and the hearer will not pay attention to the variation. When the exchange is made, /p/ is no longer mutually exclusive, but it is still non-contrastive. If, however, the {p} of "pit" is changed for {b}, the hearer will not be satisfied that both forms are the same. The initial phones are said to be in contrast in the environment of the rest of the word.

The test for a phoneme is whether or not the sound changes the meaning of a word. We say that two phonemes contrast when they change the meaning of a word. There is contrast in English between {r} and {l}, {p} and {b}, {t} and {d}, {i} and {u}, and other phonemes, because the meanings of words are changed by replacing the one with the other: light, right; pair, bare; town, down; fit, foot, etc. These pairs of words are called minimal pairs, because there is only one difference between them. A phoneme is the smallest, or minimal unit that distinguishes words. The accumulation of minimal pairs is the first step a linguist takes when he is describing a language he has never met before. The minimal pairs are then consolidated to give a list of phonemes. A full description of the language, however, must specify the environments of each phone type recorded.

Pitch differences are used to distinguish one word from another in a great number of languages in Africa, in the Indian languages of the Americas, and in the languages of the Far East. Chinese is a typical example of these tone languages. There are four tones in the Peking dialect of Chinese -- a uniform tone, a rising tone, a falling tone, and a falling-rising tone. According to which one of these tones is used in the pronunciation of the group of phonemes /chu/ it will mean "pork," "bamboo," "lord," or "to live." The Hottentot language of South Africa uses six phonemic tones: high-rising, medium-rising, low-rising, high-falling, medium-falling, and low-even.

Stress is another phonemic device. Examples of distinctive stress in English is given in the minimal pairs "billow" and "below," or the verb "import" and the noun "import." These pairs are exactly the same phonetically except for the relative loudness of the syllables. In Hungarian, on the other hand, stress is not phonemic, or distinctive, but predictable. The stress always falls on the first syllable of a word. Neither is it phonemic in Polish; stress is on the last but one syllable. In French, stress is always on the last syllable.

Duration or length of phonemes is not distinctive in English. The Finno-Ugric languages, such as Finnish, Hungarian, Lapp, and Estonian, make considerable use of quantitative differences. In Estonian there are three distinctive degrees of length. The word "sada," with a short {a}, means one hundred; the word "saada" with a very long {a}, means send (imperative); and the word "saaada," with a very long {a}, is the infinitive, to have permission. Besides long and short vowels, it is also possible to have long consonants contrasting with short ones.

Double consonants differ from long ones in that they occur on the two sides of a syllable boundary. Italian has many double consonants; English has none, double letters in spelling notwithstanding. Double consonants, phonetically, occur in English at word boundaries only, as in "red dog" or "fetch Charles." Consonants are not pronounced double within words: "Better" and "ladder" have only one medial consonant in pronunciation.

Most languages have at least one of these prosodic features: pitch, stress, or length; but there is no language yet studied that has more than two. If there are two prosodic features, often one is redundant, that is, the features co-occur. In Russian, for example, both stress and length occur, but all stressed syllables are long.

It may happen that a language will have non-phonemic tone, or intonation. The same phonetic raw features that are used phonemically in the tone feature are used non-phonemically in intonation.

There is another function of stress in language that is not phonemic (just as there is non-phonemic tone). Stress can give information about levels higher than that of the phoneme, it can mark off groups of words in the speech chain. This type of stress keeps apart phonetically identical phrases like:

blackbird	and	black bird
lighthouse keeper	and	light housekeeper

which in writing is done by spaces.

The differences between phonemes are binary, that is, they are established by digital methods. Simply, a phoneme is either one thing or another, either voiced or unvoiced, stop or non-stop, and so forth. If the question is asked, is this vowel front or back? one of two answers, yes or no, is given. These sounds are also digital from the production side of phonetics, and experiments have shown that their perception, the ability to keep these sounds apart, is a function of their digital character.

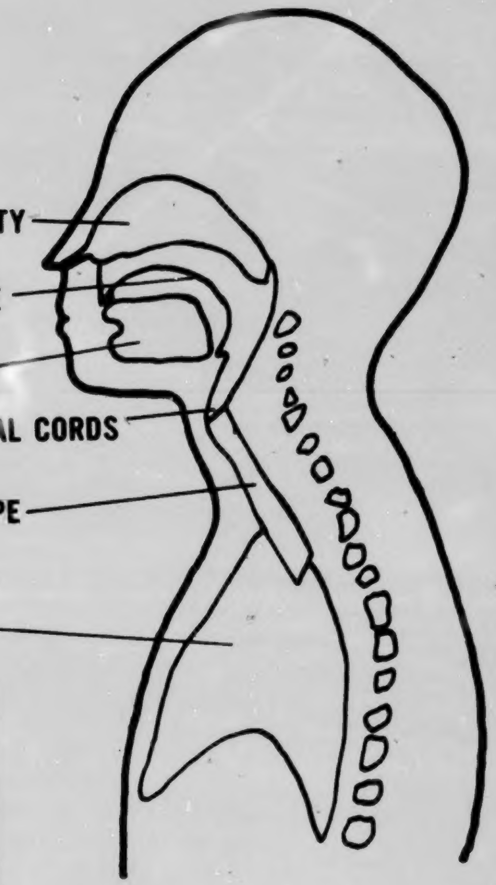
A few languages exploit the binary contrasts in a most efficient way and use only two vowels in their code. A larger number use only three vowels, and these three vowels are typically like those of "bit," "book," and "father." Most languages have more than three vowels, however. It is instructive that there has never yet been found a language with only one vowel. Were this the case, however, it would be impossible to describe this sound in terms of opposition, there being no other vowel. It is possible to say that a vowel is high only in comparison to another vowel which is lower. Perceptually it is only possible to tell that an /i/ is an /i/ if there is another vowel with which to contrast it.

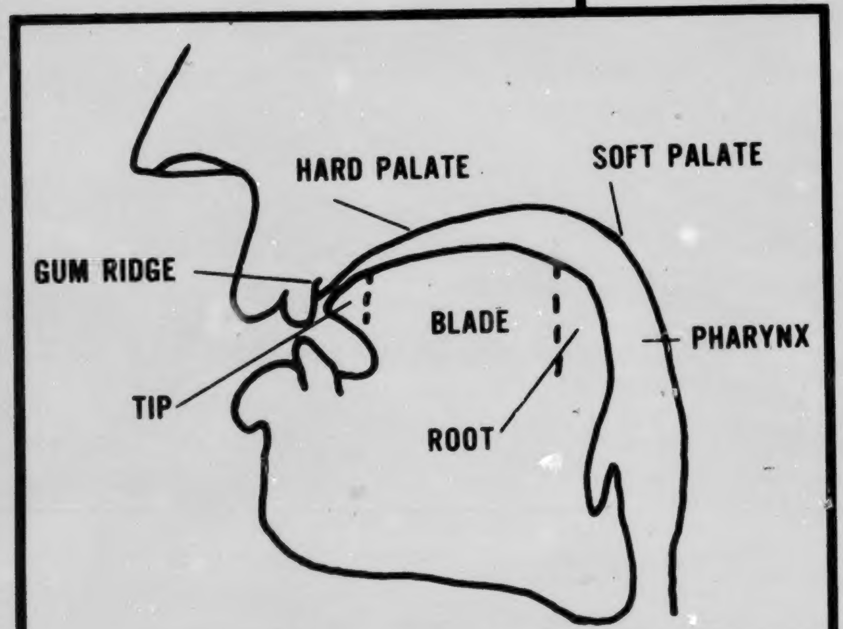
MODE OF ARTICULATION	POINT OF ARTICULATION					
	LIPS	LIPS & TEETH	GUM RIDGE OR TEETH	GUM RIDGE & HARD PALATE	SOFT PALATE	GLOTTIS
STOP						
voiceless	p "pin		t "tin"		k "cat"	
voiced	b "big"		d "dig"		g "give"	
AFFRICATE						
voiceless				c "chin"		
voiced				j "gem"		
FRICATIVE						
voiceless		f "fan"	o, s "thin," "sod"	s "shove"		h "hit"
voiced		v "van"	o, z "then," "zip"	z "rouge"		
NASAL						
voiced	m "miss"		n "not"		ŋ "sing"	
LATERAL						
voiced			l "lamb"			
SEMI-VOWEL*						
voiced	w "wag"		r "rod"	j "yes"		

*These last are called semi-vowels because they can act as the nucleus or margin of a syllable.

THE CONSONANT SOUNDS OF ENGLISH CLASSIFIED AS TO POINT AND MODE OF ARTICULATION

PARTS OF THE VOCAL TRACT


NASAL CAVITY
SOFT PALATE
TONGUE
GLOTTIS & VOCAL CORDS
WINDPIPE
LUNG


HARD PALATE
SOFT PALATE
GUM RIDGE
BLADE
PHARYNX
TIP
ROOT

DIVISIONS OF THE TONGUE AND ROOF OF THE MOUTH

Summary

There are two basic types of phonetic description: articulatory (the activity of the vocal tract) and acoustic, which deals with physical properties of the sound wave.

Phonology, coupled with the psychology of perception, shows us that the sounds of language are physically binary. It is a digital classification that allows us to tell vowel from consonant, vowel from vowel, and consonant from consonant.

There are no "organs of speech." Man has developed his breathing and eating apparatus into an effective system of communication. Air passes from the lungs through the vocal tract: through the glottis, the pharynx, the mouth and/or the nose. It is possible to modify in different ways the current of air coming from the lungs. The vocal cords may be vibrating. The passage of air may be 1) free, 2) constricted or 3) stopped by complete closing of the passage.

Sounds produced with free passage are called vowels. Sounds characterized by constricted or complete closing of the passage are called consonants. Those consonants which are produced by a complete closure are called stops. Consonants produced in a manner where the air escapes from the sides of the tongue are called laterals; those where the passage is momentarily closed and opened in succession are trills. A nasal consonant is produced by allowing the air to escape from the nose as well as the mouth. Fricatives are those consonants where the air passage is narrowed to a tiny opening, and affricates are a combination of stop and fricative. All these modes of articulation are realized with various points of articulation to produce an infinite number of possible sounds.

Phonemes are sounds that serve together to distinguish meaning within a language. A phoneme is identified by the discovery of minimal pairs; pairs of words that differ in one sound.

FURTHER READING FOR PART II

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Chapter 3

GRAMMAR: MORPHOLOGY AND SYNTAX

The study of grammar is the study of the rules for constructing sentences. All utterances, that is, meaningful acts of speech, consist of one or more sentences in various degrees of complexity. The sentence is the largest unit within which there is organization. The concepts of the phoneme and morpheme, among other things, are used to describe the structure of a sentence.

Phonemics gives us the phoneme, the meaningless unit [illegible] sound that differentiates meaning. Morphology gives us the morpheme -- the smallest meaningful unit in language. The morpheme is the smallest unit with which meaning is associated. It is not identical with the word. The concept of "word" has not been productive in linguistics -- in fact, has been the focus of much confusion. The term, word, is often inaccurate and misleading. The idea of what constitutes a word often depends on a written tradition. We call anything a word which is written with a space before and after. In speech there are no spaces before and after words. Many peoples with unwritten languages would have a difficult time in dividing their speech into "words."

Linguists try to avoid the term, "word," and speak, instead, of segments or forms of an utterance until they have done a morphological analysis and can speak of morphemes.

The rules for the arrangement or morphemes, smallest meaningful units in a language, enable the linguist to describe any utterance. Syntax is the name given to the description of the rules for combining morphemes into sentences. The identification of morphemes, and their structure, goes under the heading of morphology. Some linguists use the term morpho-syntax to describe the activities they perform in writing a grammar of a language.

If the morpheme is not a word, what exactly is it? How do we discover the smallest unit of meaning? First, let us expand this definition. Morphemes are meaningful units which recur with essentially the same meaning in the utterances of a language, but which are not themselves divisible into two or more meaningful units. Morphemes, like phonemes, are determined by comparing utterances of a language until they are divided into the smallest constituents. The definition of the morpheme is parallel to that of the phoneme, too. A morpheme is a class of semantically similar and non-contrastive variants. Morphemes, like phonemes, exist through contrast: they are identified via substitution procedures.

The process of morpheme identification can be illustrated by examining the following phrase: *the cats are purring*. The first question to be asked is if the phrase can be divided into segments that recur in other phrases with essentially the same meaning. Most speakers of English would agree that these "words" (in the written sense) do recur; we find them in phrases like: *the* house is big, my *cats* are black, it's *purring*, they *are* big. The phrase contains four meaningful units, but two of the units cannot be subdivided. *The* and *are* are divisible, but not into segments that are individually meaningful. But both *cats* and *purring* may be so divided. *Cats* contains the unit *cat* which recurs in phrases such as: a *cat* sits, the *cat* is running, etc. The segment, *-s*, with the same meaning, recurs in the forms: the dog*s*, the chair*s*, the street*s*. *Purring* is also divisible into two segments, *purr* and *-ing*, shown in phrases like: He is able to *purr*, and it is rain*ing*. The sentence, *the cats are purring*, is then made up of six morphemes, each having a distinctive meaning.

We can say *cat* (singular) and we can say *cats* (plural), but we can't say *-s*, meaning plural, more than one, alone. We can say *purr*, and we can say *purring* and *purred*, but we can't say *-ing*, meaning action in the present, or *-ed*, meaning action in the past, alone. Some morphemes appear only in combination with other morphemes, like the *-s* of cats and the *-ing* of purring. These are called *bound morphemes*, and are written with a hyphen before and/or after to indicate how they are bound. Morphemes that can occur independently, *cat*, *book*, *the*, *purr*, are called *free morphemes*.

Many "words" in English are complex morphological constructions. The following examples show words with more than one morpheme: *work-er*, *sing-er*, *nice-ly*, *slow-ly*, *un-tie-s*, *un-like-ly*, *in-act-ive-ly*.

All languages use a large number of bound and free morphemes. In some languages we may find that most of the morphemes are bound, for example, in American Indian Algonquian languages. In other languages most of the morphemes are free. Examples here are the Ewe language of the West Coast of Africa and English.

In every language specific combinations of phonemes form a few thousand morphemes. Stable morphemic constructions (perhaps the best definition of "word") are the vocabulary which is listed in dictionaries. Vocabulary items occur in all languages and greatly outnumber the morphemes. Morphemes and morpheme constructions are combined in sentences, the number of which is infinite, without limit. These three levels of language, the phonemic, the morphological, and the level of the sentence, the syntactic, characterize natural language. A young child who produces single morpheme sentences, who uses phonemes but does not combine morphemes into sentences, does not make use of a full language. The cries of animals cannot be analyzed into phonemes and are not combined into sentences. It has been said that the bark of a dog, if translated into human speech, would come out as a paragraph -- a number of sentences. The dog does not construct sentences, however. Whenever we find an animal that can combine meaningless units into meaningful ones -- phonemes into morphemes if you will, only then will we be able to say that the animal has language, in the truly human sense.

We are often told that "primitive" peoples have "primitive" languages -- languages with only a few hundred words -- that primitives do not have the vocabulary or grammar to express complicated or subtle ideas. None of this is true. All languages have highly perfected phonemic systems and equally well developed grammars; morphology and syntax. In the matter of vocabulary, every language known to us possesses the vocabulary that is required by the culture of the people who speak it. Most important to remember, however, is that *all languages have equal potentiality*. The culture of nonliterate peoples may exhibit a less developed technology than our own, their social organization may not be as complex as our own. But we cannot say that the languages of nonliterate people are less well developed than languages like French, English, or German. French, English or German may have greater resources for expression than the languages of technologically undeveloped peoples because of a richer cultural background, but any other language placed in a similar cultural background will develop equal vocabulary resources.

All languages show an abundance of terms relating to areas of experience which are of particular importance to the members of the culture. The Eskimo use a great variety of terms to describe snow of different consistency and depth. Arabs show a similar concern for terms for camels, as do the Lapps for their reindeer; age, sex, color, and condition of the animal require an expansion in vocabulary. In our own culture there is a specialized vocabulary pertaining to the automobile. Many languages have areas that offer a wealth of vocabulary and expressions in which English is deficient. All we can demonstrate by comparing two sound systems, two vocabularies, or two sets of grammatical rules is that they differ. Numerical variations in the number of phonemes or vocabulary do not indicate superiority or inferiority of a language.

Once we have seen the difference between bound and free morphemes, it is easier to understand why sentences in some languages cannot be broken into "words." A whole sentence may be composed of nothing but bound morphemes -- a one "word" sentence. One example is the Chinook Indian "word" *anialot*, meaning "I give him to her." It can be divided into its morphemes as *a*, indicating the present tense, *n*, meaning "I," *i*, "him," *l*, "to," *o*, "direction away," and *t*, "to give." Another example of a bound morpheme sentence comes from the Paiute Indians of Utah: wii-to-kuchum-punko-rugani-yugwi-va-ntu (hyphens indicate morpheme boundaries) meaning "they who are going to sit up and cut up a black bull with a knife." The literal translation, in the order of the morphemes is: knife-black-buffalo-pet-cut-up-sit (plural) - future participle - animate plura. (The phonetics of the examples have been simplified for purposes of illustration.)

In some languages the phonemic structure of morphemes is relatively invariable, in others morphemes change in predictable ways according to their environments. Some English morphemes, for example, have only one variant, one phonetic shape. An example is stone, /stown/. Other morphemes have more than one variant. Usually variants do not share any environments. An example of a morpheme with two variants is knife, /naif/. The variant /naif/ occurs in many environments, but not before the plural morpheme (written -s in English spelling) where we find the variant /naiv/. There is a whole group of English nouns that change their phonetic shape in a similar fashion before the plural -- wife-wives, loaf-loaves, life-lives. These phonetic changes are indicated by spelling in these words, but other forms, which change in the same way, by replacing an unvoiced sound with its voiced counterpart, are not so obvious. House, /haws/ changes to /hawz/ before the morpheme indicating plurality; the unvoiced "th" sound of wreath changes to a voiced "th" in wreathes. Besides nouns, many English verbs, adjectives, and other forms have multiple variants. Let us take another example, this time from the group of bound morphemes, one that we already met as the -s of cats. Two other variants of this morpheme occur in dogs and horses. The -s of cats is phonemically /s/; that of dogs /z/, and that of horses /ez/. The change in the pronunciation of the "plural morpheme" is not haphazard -- the variant /s/ appears after nouns ending with unvoiced consonants, the variant /z/ appears after voiced consonants and vowels, and /ez/ after nouns ending in /c/ /j/ or / /s, s, z/ or /z/. Speakers of English apply the rules automatically. Many are not aware that they do so.

The distribution of these three variants, /-ez,/-z/ and /-s/, is determined by the last phoneme of the accompanying form. The presence of one or another form is predictable, automatic, and regular. This description of the plural of nouns in English is good for a large number of nouns, but we also find exceptions. In ox-oxen the bound form added in the plural is /-en/, in child-children the variant is /-rn/ plus a phonetic modification of the noun. Foreign words in English also do not fit the pattern -- criteria and formulae are examples. Another instance is given by the so-called zero-variants in which the plural is formed without the addition of a bound form. The plurals of sheep and deer illustrate this. Other extreme cases also show the zero variant, with changes in the accompanying form. Plurals of the type man-

men, *foot-feet*, *tooth-teeth*, *goose-geese* add no bound forms in the plural but make a substitution in their vowels. This is similar to the substitution in *knife-knives*, only here the plural morpheme, for bookkeeping reasons, appears in its zero variant. The zero variant, the /-s, -z, -ez/, the /-en/ are all alternates for the normal plural morpheme. The plural morpheme is that element, when added to the singular form of the noun, changes the noun to the plural form. All the variants occur added to nouns, and all have the same meaning. The variants are in complementary distribution -- they do not contrast.

There are parallels of the plural morpheme variants /-s, -z, -en/ in other areas of English morphology. Consider the following sentences:

Bess's ready	/iz, ez/
John's ready	/z/
Dick's ready	/s/

The phonetic shape of the morpheme, here meaning "is," changes in respect to the preceding phoneme exactly as does the plural morpheme. We can make a rule to say that any morpheme of the form /iz, ez/ looses its vowel after all phonemes except /s, s, z, z/ and affricates (/c/, /j/), and replaces /z/ by /s/ after unvoiced sounds. There are other ways to state this rule, but this phrasing is short and precise. The rule that we have made for two morphemes turns out also to cover the morphological variants of the third person present tense of verbs as in

he misses	/iz, ez/
he runs	/z/
he breaks	/s/

and the possessive adjective morpheme

Bess's house	/iz, ez/
John's house	/z/
Dick's house	/s/

There is yet another example of the application of this pattern -- similar but not identical. The past tense morpheme, written *-ed*, has three regular phonetically determined variants: /-ed/, /-d/, and /-t/. These appear in forms like *landed*, *lived*, and *walked*, respectively. The rule for these variants says that *-ed* looses its vowel after all phonemes except /d/ and /t/ and then substitutes /d/ for /t/ after all unvoiced sounds. The parallel between the past tense morphemes and morphemes of the type /ez/ is made clearer if we notice that /t/ is the /t/ is the unvoiced equivalent of /d/, just as /s/ is the unvoiced equivalent of /z/.

As we have seen, morphemes may show phonetic resemblances. The four forms discussed that take the shapes of /ez/, /s/, and /z/ are *homonymous*, their resemblance is phonetic, but it is not paralleled by a similarity of meaning. Other examples of English homonyms are *pear*, *pair* and *pare*, *bare* and *bear*, and *sheep* (singular) and *sheep* (plural). Although similar in phonetic shape, each has its characteristic distribution and specific meaning.

Often the question arises of just what is meant by the use of the label "meaningful" with reference to the morpheme. It is easy to understand that *cat* refers to a certain kind of animal -- *go* is, among other things, a certain kind of action. But with some morphemes a concrete reference is often missing. Consider *to* in *I like to run*. The forms *I*, *like*, and *run* have meaning, that is, they refer to elements of human experience, but it is difficult to find any meaning for *to*. Yet, it seems, it must carry some meaning in the sentence *I like to run*, since without this element the sentence is meaningless. Such a function must be included in the linguistic definition of meaning, as it pertains to the morpheme. To illustrate the "meaning" of morphemes like *to*, then, examples are given of its use, in other words, of its distribution. Examples are collected of where it must occur, where it may occur, and where it cannot occur (*I can to run*, for example). Every morpheme has a characteristic distribution. *Cat* can occur in "the ___ is purring," but not in "I ___ home."

There are other kinds of morphological alternation besides the type determined by the phonemes that preceed or follow the morpheme. In many languages singular nouns are divided into classes. Let us say a noun in a certain language belongs to either Class A, Class B, or Class C. To derive a plural noun, a bound form is added which differs according to the class of the singular noun; there is a variant of the plural morpheme for nouns of Class A, one for nouns of Class B, and one for nouns of Class C. The criteria for dividing the nouns into classes in this way will differ according to the language, of course. A division can be made between nouns that are animate, and nouns that are inanimate, giving two classes. Nouns may be divided by size or shape, or even texture. In some languages there will appear to be no logical reason for the division into classes. French, German, and Spanish are familiar languages that show these noun classes. We are familiar with them under the term *gender* -- masculine, feminine and neuter nouns. (The terminology, masculine or feminine, does not reflect the masculinity or feminity of the nouns within the classes, only that one class in these languages contains among other nouns the morpheme for "male, man," and second class contains the morpheme "female, woman," and a third class contains the remaining nouns.)

For example, Class A (masculine) nouns in German, when made into the plural, add -e and change the vowel of the singular form:

Hut (hat)	Hüte (hats)
Sohn (son)	Sohne (sons)

Class B (neuter) nouns add -e:

Jarh (year)	Jahre (years)
Boot (boat)	Boote (boats)

Class C (feminine) nouns add -en to form the plural:

Uhr (clock)	Uhren (clocks)
Frau (woman)	Frauen (women)

The three regular variants of the noun plural morpheme in German are /-e/, with vowel change, /-e/, and /-en/.

Pitch, stress, and length may also enter into morphological constructions. There are some bound morphemes in English that, when in combination, shift the stress of the construction to the syllable directly before themselves. The difference in stress can be heard when forms like able, formal, and majór are combined with the morpheme -ity: ability, formality, majority. Stress also shifts to the syllable before the morphemes -en (music-musician, educate-education, audit-audition) and -ik (demon-demonic, anarchist-anarchistic, angel-angelic).

Everyone who has learned to speak English has already identified many of the morphemes of his language. Evidence of this is the mistakes children make when they are learning to speak. The child hears forms like walk and walked, show and showed, wash and washed. Then he makes a logical assumption and decides that bring should be associated with bringed, go with goed in the same way as these other forms are associated. He has discovered a morphological pattern, and is right in his assumptions in principle, but must learn the limits of the rule for combining morphemes that he has discovered.

It is not feasible to state the distribution of every morpheme in a language. Luckily, morphemes can be grouped into classes, each with its characteristic distribution. These classes of morphemes are what we are familiar with under the name "parts of speech." The structure of utterances or sentences can be described in terms of the classes of morphemes, and it is at this point that we enter the realm of syntax.

Languages differ more in morphology, the construction of "words," than they do in syntax, the construction of morphemes into sentences. In the framework of all the languages of the world, morphological constructions are more complex than those of syntax. The varieties of modification and elaboration are more numerous than those of syntax and more irregular. Irregular means that there are exceptions, instances where a general statement does not cover all contingencies, and lists must be made of cases that do not come under the general statement (forms like ox-oxen, criterion-criteria are examples of irregularities).

Our ideas about syntax have made great advances since the late 1950's and the publication of Noam Chomsky's Syntactic Structures. It is not incorrect to say that Chomsky and his students have revolutionized linguistic thinking and have had considerable influence on the thinking of psychologists and anthropologists. This group, called the transformationalists, is basically concerned with the theory of language, and more specifically with the theory of grammar. Both the notion of theory of language and theory of grammar need to be elaborated.

Chomsky has given the following definition of language: "a set (finite or infinite) of sentences, each finite in length and constructed out of a finite set of elements." In his definition Chomsky has included both natural and man-made languages. Man-made languages, for example those used by man to communicate with computers, usually contain a countable (finite) number of sentences, and, by definition, there is among the definite number of sentences one that can be discovered to be the longest sentence in the set. Natural languages, on the other hand, like English, French, and Swahili (any of four thousand spoken today and another ten thousand extinct languages) contain an infinite number of sentences; there is no limit to the number of new sentences that can be created. Also, natural languages have the property that any sentence can be made infinitely longer. We can say "that is a very big house" and we can say "that is a very, very big house," and we can keep adding very to the sentence forever, but it will never be the longest sentence in the English language because it is always possible to add another very.

The definition also says that every sentence is made up of elements and that the elements of any sentence are countable. One set of elements is the phonetic component of the sentence, and these elements will be limited in number for we can count the symbols in the phonetic alphabet. Other elements will be morphemes and morpheme constructions, which are also countable.

The second part of the definition tells us that each of the sentences of the language is finite in length. This is quite different from saying that there is no longest sentence. Each sentence must have a beginning and an end (otherwise we would not be able to understand it), but there is nothing to prevent the lapse of time from beginning to end from being increased. Each sentence is of finite length, but each sentence of finite length can be made one word longer. (This is a rather fine distinction, but an important one, and the reason for making it should become obvious as we continue.)

Chomsky's statement defines language in terms of sentences, for which he does not give a definition. In fact, this school of linguistics has never attempted a definition of the sentence. Instead they make the point that they are trying to discover how to define the sentence. They further go on to say that the only valid definition of a sentence is a full grammar of the language in question, a full set of rules for constructing sentences. In using the term sentence in his definition of language, the transformationalist is assuming that his reader, as well as himself, is already aware of what a sentence is. This intuitive knowledge of a sentence is not the same thing as a scientific logical statement. The evidence for the intuitive knowledge of sentences is that fact that a native speaker of a language understands sentences, produces sentences, and is aware when a sentence is not well-formed. It is instructive to mention that even the traditional definition of the sentence as "contains a subject and predicate and expressing a complete thought" is meaningless unless we already know what a "complete thought" is. In other words, this definition is meaningless unless we already know what a sentence is.

The lack of explicitness concerning the sentence invades as well the definition of grammar: "a device that generates all of the grammatical sequences of a language and none of the ungrammatical ones," where "grammatical sequences" can be read "sentences." The sense in which the transformationalists use "grammar" can be understood as the logical generalizations about the way language operates. The theory of grammar should account for a native speaker's intuition about his language -- the logical generalizations he himself makes. A scientific grammar, then, differs from the grammars that are used to teach in the classroom. These last are grammars that were aimed at instructing an individual to better his spoken or written performance. A distinction is made between a speaker's performance and his competence. The distinction is equivalent to the difference between code and message, where the code is a set of rules for encoding messages. Similarly, a speaker's competence, his knowledge of phonemes, morphological and syntactic rules, enables him to perform, that is to speak or write sentences. A scientific grammar aims to fulfill the function of competence. A pedagogical or teaching grammar aims to improve performance.

The notions of competence and performance can be expanded even further. A child of five or six has heard thousands of sentences and has spoken thousands of sentences. He has been praised when he produced a well-formed sentence and corrected for sentences and constructions (bringed, etc.) that were not well-formed. On the basis of these, and other little understood processes, the child constructs a grammar, a set of rules that enables him to produce sentences that he has never heard and to understand sentences he has never heard before. Every child has a built-in genetic ability to make generalizations about language after being exposed to linguistic data. A speaker's competence increases up to a point with age, but the potential for competence is something a normal human being is born with. Performance, on the other hand, varies greatly from individual to individual and within the individual from time to time. It is affected by fatigue, embarrassment, illness, or if the speaker is in a hurry. Competence is unaffected by these things. In other words, a speaker's competence is his language ability, the generalizations he is able to make by the fact of being human. His performance is his speech, the ways he realizes his language rules.

A scientific grammar does not pretend to be anything equivalent to the grammar a person actually uses to construct sentences; it does not attempt to duplicate a human being's competence. What it does attempt is to function as competence does, to do what the native speaker does. It is a method for evaluating novel sentences, and producing novel sentences. A grammar of this sort is a generative grammar. It contains a list of symbols, including morphemes, and a list of rules for combining these symbols into sentences. Such a grammar "generates" all the possible sentences in the language; it does not mean that all the sentences are listed. (We have already noted that the number of sentences is unlimited. It has been calculated that it would take 100,000,000,000 centuries to produce merely all the possible ten word sentences in English. This is longer than there have been human beings on earth.) The rules that generate sentences permit a speaker or a grammar to make up any of the infinite number of sentences, or understand any of the infinite number of sentences. A scientific grammar is said to perform the same functions as competence, a person's internal grammar.

What we have said so far has been summarized by Chomsky himself:

> A grammar of a language aims to present in a precise and explicit form just those facts about the language that its speakers know intuitively. It attempts to account for the native speaker's ability to understand any sentence of his language and to produce sentences, appropriate to the occasion, that are immediately comprehensible to other speakers although they may never have been spoken or written before. In fact, in the normal everyday use of language, one is constantly dealing with sentences that are quite new, both as a speaker (or writer) and a hearer (or reader). For

example, the sentences of this paragraph will be new to most readers, as will most of the sentences in today's newspapers or tomorrow's conversations. From this observation we can conclude that the speaker-hearer's knowledge of his language must be represented as a system of rules, and that his linguistic competence lies precisely in his ability to arrange these rules in new and previously untried combinations in forming and interpreting sentences. These rules, in their various arrangements, specify the structure of each sentence of the language; intuitive mastery of them is what constitutes knowledge of a language. A grammar presents this system of rules. In more technical terms, we can think of a grammar as a system of rules that specifies the class of phonetically possible utterances that are well formed in the language in question, and that assigns to each well-formed sentence (whether or not it has ever actually been produced, or ever will be produced) a *structural* description that incorporates and expresses just the information about the sentence that is available to the person who understands it. Thus a speaker of English knows that "the puppy looks terrifying" is well formed, whereas "the puppy looks barking" and "terrifying looks puppy the" both fail to be well formed (though, to be sure, they differ in the degree to which they are deviant).[1]

An example may give a further idea of competence and what a grammar aims at explaining. All native speakers of English will recognize that the two sentences

John is easy to please.
John is eager to please.

are different, and the difference becomes more obvious when we try to rearrange the sentences. *It is easy for us to please John* is a possible sentence, but **It is eager for us to please John* is not a possible sentence in English. (The asterisk before a constructed sentence that is not well-formed is a linguistic convention.) We can say *He is eager to please us*, but not **He is easy to please us*. A grammar aims at explaining our intuition about these and other sentences, and how we know that sentences like **He is easy to please us* are not grammatical.

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[1] Chomsky, Noam, "Introduction" p. ix in Paul Roberts, *English Syntax: A Book of Programed Lessons*. Harcourt, Brace & World, Inc.: New York. 1964.

There are two kinds of sentences in any language, *kernel sentences* and *transforms*. Kernel sentences are the basic, elementary sentences of the language, the material from which all other sentences are made. Transforms are all the other sentences; they are sentences drawn from the kernels to produce all sorts of variations. The simple underlying structures, the kernel sentences, express all the grammatical relations and functions that appear in any sentence. The kernel sentences are finite in number. The rules of transformations are used in an infinite number of arrangements to form an uncountable variety of sentences, the transforms.

Summary

This very simplified and brief introduction to grammar, morphology and syntax, may help to give a better understanding of the nature of language. Language is highly systematic. An essentially simple structure underlies the infinite number of possible English sentences. The chapter gives an idea of how it is possible for us to learn our native language and thus function as human beings.

A grammar of language X is a definition of sentence in language X. A grammar performs the same function as competence: it enables us to generate and recognize grammatical sentences.

There are two kinds of sentences; kernel sentences and transforms. Kernel sentences contain all the grammatical relations that exist in the sentences of the language.

A complete grammar has several parts. The syntax contains a lexicon, and gives us an analysis of a sentence into its minimal functional parts, its morphemes. The syntax also provides a description of the way in which the morphemes are interrelated and organized into larger structures. Some linguists include phonology as part of grammar since many phonological rules require syntactic information for their proper functioning. Still another part of grammar is semantics, which uses the syntactic description to give a semantic interpretation of sentences.

FURTHER READING FOR PART III

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Chapter 4

historical linguistics

Language is constantly changing, relentlessly. When people who speak a language move from their old homes and lose contact with other speakers of their language, it changes. So does the language of the people left behind.

So far we have been looking at language purely as a system operating at a given time, disregarding the ways in which the system has changed through time and continues to change through use. In historical linguistics differences in languages are studied between two points in time.

Language is learned from other people who in turn learned it from others, who in their turn learned it from other people. A person's language is a product of the whole society and the society's antecedents. Historical events and conditions are reflected in language, for instance the names of technical products, words borrowed from societies with achievements in certain areas of culture. There are Italian musical terms in English, for example, and there are phonemes which have been adopted under the influence of other languages. A language mirrors the history of the societies in which the language was developed.

A study of the history of language gives us an understanding of some present-day irregularities as well as regularities. Historical linguistics can give an answer to the question of why we say men instead of mans for the plural of man. Language cannot be explained solely by logical rules, but much of the seeming illogicality of language can be explained by referring to historical periods in which an irregularity fitted a regular, systematic structure.

The study of the history of language can release us from the narrow point of view imposed by our present-day language. In our study, we learn that rules of grammar and pronunciation are not fixed, are not "laws." One learns that what is considered ungrammatical today may not have been so awhile ago. Language is alive and changing, and what is considered correct at one time may be only a current fad.

In the following section we will explore the comparative method, the systematic comparison of languages, which is used to discover the genetic relationships between languages. This will be followed by the description of the Indo-European language family, to which English belongs. The purpose is to see what is meant by the term, "family of languages," and how such a family is discovered.

The comparison of various languages may lead to the assumption that some languages are related, that they may have developed from a common source. In observing any two languages, certain similarities will be found. Two languages may have a /k/ phoneme, a /p/ phoneme, and an /a/ phoneme. They may even have the same sound sequences: /pak/ in the English word *pock*, the word in French for *Easter*, the Dutch word for *suit of clothes*, and the Albanian word for *slightly*. The similarities in form tell us nothing about the relationship of these languages -- they are the result of *happenstance*, and have occurred by chance. Similarities in grammar in two languages, for instance the fact that two languages both have animate and inanimate noun-classes, also tells little of their historical relationship. If, however, we find similarities of both form *and* meaning in two languages, there is much less possibility that these are the result of chance. There is an English word /hand/ meaning "hand," and a German word /hant/ meaning "hand." There is also a morpheme *-s* indicating a possessive in both languages. Similarities like this, of both form and meaning, suggest more than an accidental coincidence.

Historical relationships between languages can be the result of either or both of two processes. Two languages are historically related when they show evidence of the borrowing of syntactic constructions, morphology, or phonemes. Borrowing indicates that the people possessing the two languages have been in contact at some point in history. The other historical relationship languages can show is descent from a common language. Descent indicates a *genetic* relationship between the two languages: both had a common "parent" language from which they each derive. Once in history, the speakers of these languages shared a common language. An example of genetic relationship is shown by English and German in which there are very many similarities of form and meaning. In spite of centuries-long geographical and cultural separation of the peoples speaking these languages, we explain the similarities by saying that they both derive from a common language, proto-West Germanic. The relationship of English and German is further substantiated when, in addition to items like *hand* and the possessive, we find that both languages use the stops /d/ and /t/ to form the past tense of verbs. One type of similarity in form and meaning is more significant for ruling out chance as a cause: correspondence in irregular forms. Take the example of the formation of the comparative and superlative in English and German. Both add the bound morphemes *-er* and *-est* to the base form of the adjective -- *slow*, *slower*, *slowest*; German -- klein, kleiner, kleinerest (e) ("small," etc.). There is an irregularity in adding these forms to the base form *good*, however. In English the variants are /*bet*-/ (*better*) and /*be*-/ (*best*). In German the irregularity is a corresponding one: gut, besser, best. This type of correspondence argues very strongly for the historical relationship of the two languages.

A language alters more readily in sounds than in forms and syntax. Change is more prominent in borrowed forms for the area of vocabulary, than for grammar or phonology.

To rule out chance in the explanation of similarities between two or more languages, the linguist depends first, on the sheer bulk of the similarities, and second, on whether there is some pattern to the similarities. The main evidence for deciding that there is a genetic relationship between two languages has been, since the 19th century, the discovery of pervasive phonological correspondences between the languages in question. Examples of a consistent phonological correspondence is the {f} in Old English (also known as Anglo-Saxon, and dated as 700-1100 AD) which has replaced the {p} in words derived from Latin, and the change of Old English ban "bone" and stan "stone" to Modern German bein and stein, respectively. These phonological correspondences fall into patterns in the related languages. Phonological changes are historical, not natural changes. They may be stated in a neat way after they have occurred, but it is not yet possible to predict them. A statement of sound change does not include changes in a particular language at a particular time in history. A sound law that says {p} in Latin will change to {f} in Old English does not mean that every {p} will change to {f}, but only that at one period the change was general.

Although not every {p} will become an {f}, we assume that sound changes are regular and without exception, however, and that apparent exceptions can be explained by the operation of other sound laws and forces of change.

Just what is responsible for sound change is not clear -- what seems to be the factor in one case will not produce a sound change in another situation. One explanation for the uniformity of sound changes, when they do occur, is that the system of phoneme contrasts must be maintained. The phones, or variants will change in a regular way to maintain the system of contrasts that keep words apart.

Similarity of form does not mean sameness of form. If one language has the forms /tep/, /kes/, and /feš/, and a second language has the forms /dab/, /gaz/, and /važ/ meaning the same things, even though the sounds are not the same, a knowledge of phonology will lead us to suspect a relationship. The evidence is a consistent change between voiced and voiceless consonants (at some point of articulation) and a correspondence between /a/ and /e/ in languages 1 and 2. It is not necessary to have a single sound be the same in two or more languages to prove a historical relationship. The key clue to relationship is consistency in parallel forms.

The next question to ask, once chance has been eliminated, is what has determined the similarities in form and meaning. Is it borrowing, or do the languages stem from a common source? The first step in answering the question is to try to eliminate borrowing as the reason for the resemblances. Languages generally borrow words from other languages in fields which are new for the borrowing culture. If we classify the similar words into areas of vocabulary, and find they are concentrated in special fields, we can conclude that the similarities are due to borrowing. If, on the other hand, we find the words to be part of a basic, general vocabulary, such as numbers, parts of the body, or common actions (walk, eat), the best explanation is common descent. The bulk of French words borrowed into English, for example, is a specialized vocabulary and covers military, legal, administrative, and political matters, as well as fashion and cooking.

A second test for borrowing comes from the principle that borrowed words are closer in form to the original than are resemblances that come from a parent language. Many of the words in English borrowed from French closely follow the French pattern.

Yet another test for borrowing is the historical plausibility of the two languages ever being in contact. This test, needless to say, can be used only when the history of the speakers of the languages is already known to some extent. We know that the French and English have been in contact for more than 1000 years, and that French speakers, the Normans, settled and ruled in England for 300 years, which further substantiates the idea of borrowing between these two languages.

A fourth test is based on knowledge of the historical sound changes in the two languages. The consistent changes in sound within language over time can tell us if it is likely that a word is borrowed, whether it shares a common origin with a similar word in another language or even what language it comes from. Gut in German and good in English are similar in form and meaning. From a knowledge of the history of sound changes in English we know that the oldest recorded form of "good," guot, could not have become good in modern English. There are no consistent sound changes to account for it. This means that good could not have been borrowed from German into English, but must belong to a period before German and English were separate languages.

A knowledge of changes in phonology can even tell us when a word was borrowed. Both chief and chef are borrowed from French, in fact the same word borrowed at different times. In the latter

Middle Ages all French words with {c} changed to {s}. The word chef in English is a later borrowing than chief.

If a word in the borrowing language has not undergone change, on the other hand, it must have been borrowed before the change in the donor language. In general, if the form of the word in one language shows that it has been affected by phonetic changes operative in the other language, it is safe to assume that the first is the recipient and the second, the donor."

The last test for borrowing relies on written records. The test depends on the dating of the earliest appearance of the form. If one does not find forms in one period, but finds them at a later period (as the words measure and pleasure in English), and knows that the words were in the second language before they appeared in the first (measure and pleasure were Old French before English), there is reason to assume they are borrowed from the second language.

Once we have eliminated borrowing and chance, we then suspect that similarities of form and meaning are due to the genetic relationship of the languages in question.

Since the Renaissance, and even earlier, comparisons of words in different languages had been made and ideas formulated about genetic relationship. In the middle of the 18th century it was known that there were similarities in German, Dutch, and English, between Hebrew and Arabic, and that French, Italian and Spanish were related in some way to Latin. But the family relationship that covers most of Europe and West Asia had not yet been worked out. What precipitated thinking about language (and promoted the science of linguistics which came into being in the first half of the 19th century) was the discovery of Sanskrit by Western scholars, and the discovery of the similarity of this ancient language of India to Latin and Greek. In 1786, Sir William Jones declared that Latin, Greek, and Sanskrit were descended from a common ancestor and that the Germanic languages probably also sprang from the same source. In a work published in 1816, Franz Bopp put forth his study, a beginning of the systematic comparison of the Indo-European language family. The name, Indo-European, indicates the geographical spread of the related languages.

We have already noted briefly some of the branches of the Indo-European language family and now will treat them systematically. An understanding of language development also requires that we determine the interrelationships of languages within a family. Using the comparative method of sound correspondences, linguists have listed the characteristics of the branches of the Indo-European languages -- their phonology, grammar and vocabulary -- and agreed that there were at least eight significant dialects of Indo-European which in time have come to develop into modern Indo-European languages.

The branch of Indo-European for which we have the oldest documents is the Indo-Iranian. It includes a large number of languages spoken today in India, Pakistan, Iran and Afganistan, and southern Russia. Indo-Iranian is one of the two main language families of the Indian subcontinent. Its speakers are concentrated in Pakistan, and northern and central India. Modern Indian Indo-European languages, descended from sister languages of classical Sanskrit are, among others, Bengali, Gujerati, Hindi, and Romany, the language of the gypsies. Indo-Iranian is also represented today by the Persian language, by Pashtu, the official language of Afganistan, Kurdish, spoken by nomadic groups of western Iran and Turkey, and some others.

A second branch of Indo-European is Armenian. Modern descendants are divided into East and West Armenian. The eastern branch is spoken in the U.S.S.R. and Iran; the western, in Turkey.

A third branch is Balto-Slavic, divided into the Baltic languages: Old Prussian, Lithuanian and Lettish (also called Latvian). Old Prussian has been extinct since the 16th century. Lettish is really an off-shoot of Lithuanian that has been influenced by the non-Indo-European language, Estonian. Neither Lettish nor Lithuanian has more than several million speakers today.

The Slavic sub-branch of Balto-Slavic is a large and important group today. The main language is Russian. Other languages are Ukranian, Polish, Slovak, Czech, Bulgarian, Serbo-Croatian, and Slovenian. Bulgarian in its oldest form became the ceremonial language of the Russian and Bulgarian Orthodox churches where it is still used today. The first Slavic translation of the Bible, in the 9th century, was in this old form of Bulgarian.

A fourth group of the Indo-European language family is Albanian, which today has two main dialects, Geg and Tosk, corresponding to their original location in north and south Albania. Tosk extends into Greece and Italy.

A fifth branch of Indo-European is Hellenic, which is comprised of modern Greek today. In earlier forms the Hellenic group showed a great variety of dialects.

Italic is the sixth branch. In ancient form it contained, among other languages, Latin, from which French, Italian, Spanish, Portuguese, and Rumanian are descended. Besides these important languages of today, there are others with a small number of speakers -- Catalan and Rhaeto-Romansch. Rhaeto-Romansch is spoken in Switzerland and Italy by about 100,000 speakers.

The Celtic languages, a seventh branch, were once widespread over Europe. Remaining today are Irish, Welsh, Gaelic, and Breton. These languages are still preserved by small groups of speakers. The Celtic languages have diverged more than other branches of Indo-European, and it was some time before their sound correspondences with other Indo-European languages were worked out.

The eighth branch is Germanic, to which English belongs. Much of the displacement of Celtic was brought about by Germanic speakers. One Germanic sub-group contains those languages that are spoken today in Iceland, Denmark, and the remainder of Scandinavia, with the exception of Finnish. All of this group, like the others before it, have features in common which allow us to classify the languages together, to posit a common ancestor.

Another sub-branch contains present-day English, as well as older forms of English, Old and Middle English, the closest relative of English, Frisian, which is spoken in northern Holland and the adjacent islands off the coast, German, Swiss German, Dutch and its dialect called Flemish. Yiddish, a Germanic language spoken by East European Jews, whose ancestors lived in Germany in the 14th - 16th centuries, is included. This sub-branch also contains Afrikaan, a language of the Dutch settlers in South Africa.

It should be remembered that the breaks between the language reflected in the dating for the termination of some languages (i.e., Middle English 1100-1700) is approximate and convenient. Languages do not change abruptly. If we date the end of Old English and beginning of Middle English at 1100, it does not mean that there was a difference in the speech of parents and children at this time. The criteria used for dating languages have been, for example, a political development, such as the Norman Conquest, the invention of printing, or simply the turn of the century.

There have been attempts to reconstruct the culture of the alleged proto-Indo-European speakers on the basis of words for cultural items and evidence from archeology. Attempts have also been made to localize the speakers of proto-Indo-European on the evidence of shared vocabulary. On the basis of certain plant and animal names, geographical terms and terms for climate and weather, the proto-Indo-Europeans have been placed (before the time of their migrations to India, Asia Minor, Italy and Greece) somewhere in Central Europe, either the Danube basin or Southern Russia.

The developments in dialects in a time when there was no writing to preserve one form of the language--no mass communications and poorly developed political organizations--was much more rapid than today when we have all these forces holding language together. Indo-European as spoken by various separated tribes first became dialects of one language and then separate languages or dialects that were mutually unintelligible.

Study of the Indo-European family is important for an understanding of the comparative method and for knowledge of how many of the world's most widely spoken languages are related. The methods used for Indo-European languages may also be applied to other language groups. The Indo-European language family is probably the most important and most widely used today.

The methods that were developed in the discovery of the Indo-European language family were soon applied to the other languages, which showed similarities greater than chance or borrowing could account for. Other families were discovered, for example, the Semitic, the Uralic, and Sino-Tibetan. The African and American Indian languages, the languages of Oceania and Melanesia, for the most part without written records, represented greater problems for the comparative linguist, but the language families of the world are now known in some detail.

Although most of the languages of Europe belong to the Indo-European language family, there are a number that do not. Basque, a language spoken by less than a million people on both sides of the Pyrenees, is one of these and has no known relatives. An extinct language of Europe, Etruscan, and Sumerian of Asia Minor are similarly not yet classified. Sumerian was the language of southern Mesopotamia from about 4,000 B.C. until its replacement by Semitic languages. Etruscan was spoken in Italy until replaced by Latin.

The other non-Indo-European languages of Europe, Finnish, Lappish, Hungarian and Estonian, belong to the geographically extended Uralic family, which also includes languages with smaller numbers of speakers -- in east central European Russia and other languages in parts of Russia adjacent to Finland. The Samoyed languages, with about eighteen thousand speakers in Siberia, are an early off-shoot (circa 2500 B.C.) of the Uralic family.

In the central part of Asia, Turkic languages are spoken. The best known Turkic language to Americans and Western Europeans today is Turkish. There are approximately twenty other Turkic languages, chiefly located in the Turkish republics of Russia. The Turkic languages are classified with the Mongol and Manchu-Tungus languages into the Altaic family. Mongol languages are spoken today by three million people who live in Mongolia and in scattered communities in parts of Asia and European Russia. Tungus languages are spoken in Siberia; Manchu is spoken in the area to the north of the Mongols. Some scholars add Korean to the Altaic family.

Besides the Indo-European and the Uralic and Altaic families, the most widely studied is the Afro-Asiatic family of languages, which contains many languages of North and West Africa, Ancient Egyptian, and the Semitic languages. There are a number of Semitic languages known only from written records, among them, Ancient Hebrew, Aramaic, Phoenician, Babylonian and Assyrian. The Semitic sub-branch of Afro-Asiatic has representatives in languages spoken today: the modern Hebrew of Israel, Arabic in north Africa and Asia, and some languages of Ethiopia. The Afro-Asiatic language family is one of four indigenous language families of Africa. First among the three other African families in the Niger-Congo, are the Bantu languages and Swahili, a trade language that is used for communication throughout a good part of eastern Africa by speakers of mutually unintelligible languages. Niger-Congo is a widespread language family, extending from Dakar in West Africa, east to the Kenya coast, and south to the tip of the continent. It includes an enormous number of languages. Many of these languages have no more than half a million speakers.

To the north of the Niger-Congo family, and south of the Afro-Asiatic languages of Africa, is a language family named Nilo-Saharan. Most of the languages belonging to this group are spoken by small populations. The largest is a major language of northern Nigeria, Kanuri, with a little over one million speakers.

The fourth language family of Africa is the Khoisan, the smallest of the four in number of speakers -- less than 100,000. The bushmen and Hottentots, who speak Khoisan languages, now live in the southwestern part of Africa. They are distinctive in physical type (they are not Negroid) as well as in language.

Alongside the Altaic languages in Asia we find other languages unrelated to them. The large Sino-Tibetan family is located in eastern and southern Asia. Chinese is one of two of its branches. Since there is one writing system for all of this area, it is often thought that Chinese is one language. In fact, it consists of at least seven distinct and mutually unintelligible languages, each with its own dialects. Besides the Chinese languages, the Chinese sub-branch of Sino-Tibetan includes various languages in Thailand and the regions to the east of this country.

The second sub-branch of Sino-Tibetan comprises the languages of Burma, and Tibetan.

In western Asia are the Caucasian languages of the Caucasus Mountains, still not too well known despite recent work. The best known member is the Georgian language. This group is of great interest to phonologists because the languages contain a large number of consonants and few vowels.

Far to the east, in Siberia, Paleo-Siberian languages are spoken. These, too, are inadequately described, and what was once thought to be a related group of languages is partly a geographical cluster. The communities speaking these languages are small and nonliterate.

Japanese, with about ninety-five million speakers, is apparently unrelated to any group. Ainu is another such language. Ainu is spoken by a small group that lives today in the northern part of the Japanese Archipelago.

Dravidian is a language family represented in India along with Indo-European. One Dravidian language, Telugu, has the second largest number of speakers in India. Other large Dravidian languages are Kanarese, Malayalam, and Tamil.

In eastern India, and in areas more to the east, are language groups whose further classification is still uncertain. Munda is a group of languages spoken by some three million people in India and on the southern slopes of the Himalayas. The Mon-Khmer group includes languages spoken in Vietnam and some other languages scattered throughout Southeast Asia.

Excluding most of the languages of New Guinea and the languages of the Australian aborigines, all of the languages of Oceania belong to a single stock, Malayo-Polynesian. Classification into branches in the absence of written records requires further linguistic study. The Malayo-Polynesian family extends from Mada Madagascar to Easter Island, from Hawaii to New Zealand, and includes some 800 languages. No doubt this family had the widest distribution of any language family on the globe before the expansion of Indo-European. This language family today includes Malay, Javanese, and Tagalog, in the Philippines. The Indonesians, with the establishment of a new nation, have developed a national language, Indonesian, based on the Malay language.

Last of the geographical areas in our survey of the language families of the world are the North and South American continents. It is estimated that the Indian population of North and South America spoke over two thousand languages in the period before European contact. Only a third of these were spoken in the area that is now the United States and Canada.

The more widespread and better established families of North and South America are all that will be mentioned here. Eskimo-Aleut extends from the Arctic coasts of Alaska, east to Greenland; Athabaskan exists in northwest Canada, Alaska, and in smaller groups in New Mexico, Arizona, Texas, and the Pacific Coast; Siouan contains the languages of many of the Plains Indians; Algonkin and Iroquoian languages extend over the northeastern and midwest parts of the United States, as well as in Canada;

Uto-Aztecan covers Utah and most of Mexico; *Muskogean* covers most of southeast United States. In South America, *Tupi-Guarani* is on the coast of Brazil; *Ketchuan* contains Ketchua, the language that the Incas spread in their conquests from present-day Columbia to southern Peru. Other important families are Chibcha, Aymara, Arawak, and Carib.

Other language families in the Americas are much smaller than these just listed. In California, for instance, it is estimated that there were 150,000 speakers who together represented 135 languages in twenty-one families. There are many areas of North America that show equal complexity.

The actual number of linguistic families can probably never accurately be determined. As our knowledge increases, other similarities will be discovered, and what are now unrelated languages may be seen to have a common ancestor. The main purpose of classifying and relating peoples by the comparative method of linguistics remains a powerful historical tool, however.

Language divides mankind, besides characterizing all of it. It is rare that a society has a uniform language. Uniform languages occur only in small nonliterate societies with simple cultures. In larger and more complex societies -- as in modern Europe or America -- instead of a language common to all speakers we find a variety of languages that differ from each other in varying degrees. Where such a society is organized as a nation and has a well developed literary tradition, one of its languages may be recognized as standard and all others as provincial, or nonstandard. There are many variations of a language inside even the smallest of countries. What is known as the standard language of a country, that spoken by educated people in the nation's capital and in the country's broadcasting, is itself a *dialect*.

What we call dialectical differences in language can be seen to be a step in the differentiation of related languages. In earlier times without the conservative forces of writing, mass communications, and nationality, dialects of one language changed enough over time so that their speakers could no longer understand one another. They became, in fact, related languages. Differences in language use that are non-linguistic -- that is, do not make it impossible for one speaker to understand the other -- but are connected with societal and cultural distinctions on the part of the speakers, are called *dialectal*. There are several types of dialect. One is regional. The regional dialect of the Southern United States contrasts with that of, say, New England, in phonology (for instance, the pronunciation of *I*) and in vocabulary items (*tonic* versus *pop* or *soda*) and also in intonation of whole sentences. There are also *educational* dialects, which differ from the literary standard: *He don't know* instead of the form *He doesn't know*. Dialects of this type give information to a speaker about the educational level of the person he is talking to. It is important to note that the construction *He don't know* is perfectly understandable to a native speaker of English. In this sense, then, it is grammatical. There is nothing inherently wrong or incorrect with this expression, or ones like *You done it*, *I ain't*. They are not incomprehensible, merely socially unacceptable. The stress placed on education in our culture and the adherence to a written standard as a symbol of one's level of education makes some usages, and therefore their speakers, uneducated with a negative value judgment.

There are also *specialized* dialects, the vocabulary and expressions of people in certain occupations (linguists, for example, or airplane pilots) or groups of people who share a style of life (hippies, school children, or soldiers).

Fourth are the *functional* or *stylistic* dialects, which also indicate cultural relationships between people. These dialects may be understood as styles of levels of speech. In all languages there are at least two styles of speech, formal and informal. Many languages have more styles; in Japanese, for example, there is one used only in addressing dignitaries and one for writing formal letters. In some cultures men and women speak separate dialects which differ in vocabulary and even grammar.

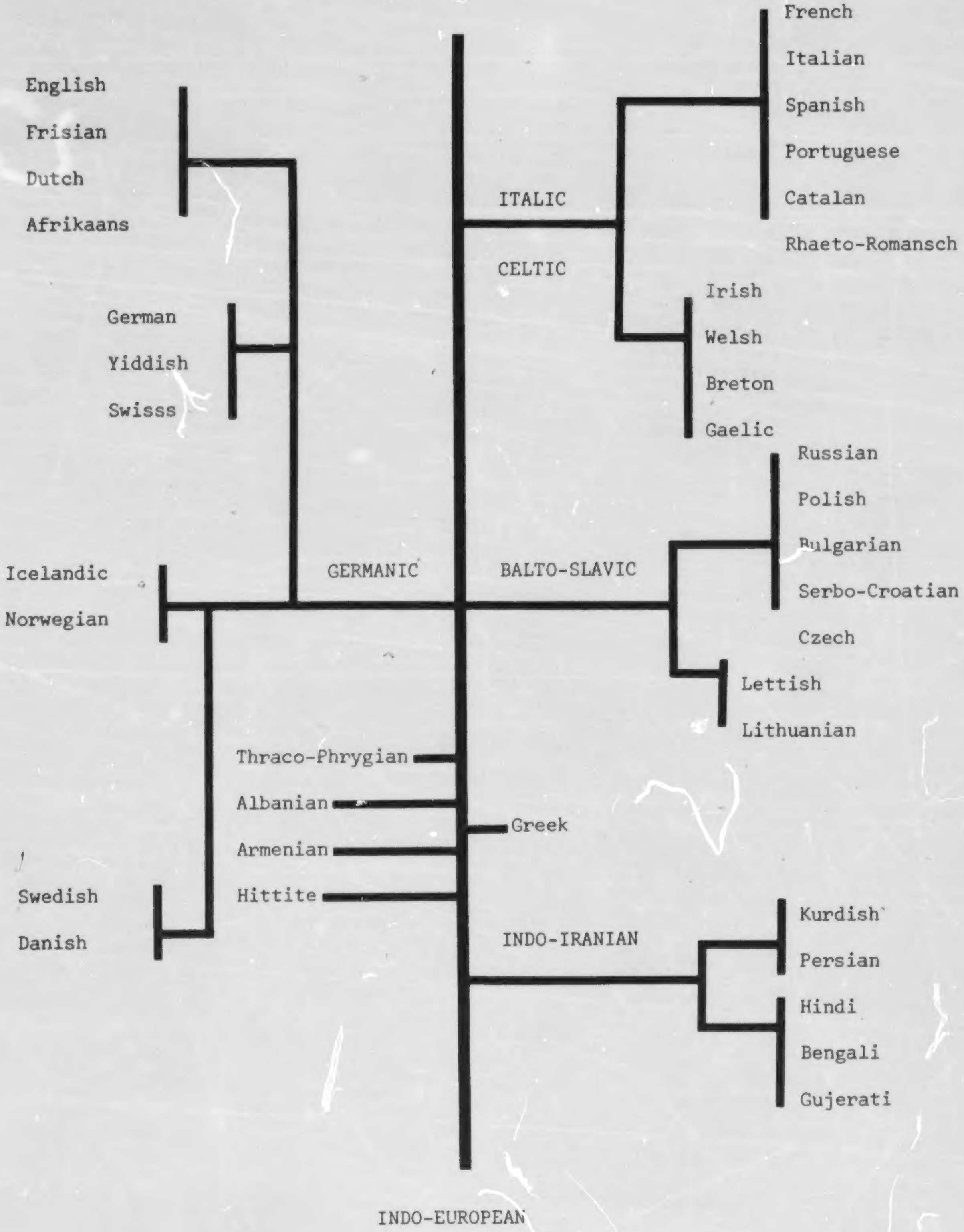
In a sense everyone uses dialects, and most people use different ones on different occasions.

When one dialect "makes good" and becomes the standard dialect of a language for a region or country, there are strong geographic, social and cultural reasons. Nonstandard dialects are not inferior versions of a language, merely those which have not gained prestige. The Middle English dialect of London succeeded in becoming the standard dialect of most of the speakers of English for two reasons. In late medieval times London was the political, business, and cultural center of England. Secondly, a large number of people from all over the country settled in London at this time, and the dialect was adopted by a large population.

Slang is a type of speech that has roots in dialect. Slang designates the use of non-standard features by speakers of standard dialects, deliberately, for a certain effect on the receiver.

The comparison of languages through time may lead to the discovery of related languages and peoples, and classification of languages into families. There is another way to classify languages, *typological classification*. This comparison of languages does not use time as a factor, but instead classifies languages by types rather than origins and relationships. One purpose of typological comparison is to arrive at language universals, those elements and processes, despite their surface diversity, that all languages have in common.

One of the oldest typological classifications divides languages into an isolating type, an inflexional type, and an affixing type. This is a typology based on grammatical features. Isolating languages do not use bound morphemes (Chinese is an example); both inflexional and affixing languages bind morphemes to a base form in their inflexions, but differ in the degree to which they do this. In affixing languages the bound form, an unchanging element, is readily separated from the base. In inflexional languages the separation is not so simple, since variants of bound morphemes exist, take the zero form, or change the phonological form of the base. This kind of typology tells us very little about language, except in a negative way; a language does not have to have bound morphemes. A typological classification can be based on any component of language -- the phonological, the grammatical, or the semantic. A classification could be made of all the languages with the phoneme /k/ and those without it, of all the languages with the final cluster /mb/, and those without it, of all languages with noun classes or a future tense, and those without these attributes. To be valuable, however, a typology must use structural phonological and grammatical features which are broadly represented in all languages. An example is the distinctive features, some of which were seen to be universal giving statements like "All languages have at least two vowels," and "all languages have a contrast between vocalic and consonantal sounds," and conditional universals, "if a language has only one fricative, it will be /s/." These types of statements can be made only by comparing languages from all families, and attempting to divide them into groups by counting the number of their vowels and fricatives, or comparing their systems of distinctive features. Comparisons of this type have also shown that syllables are linguistic universals, and new statistical procedures for establishing morphological typologies look promising. The obvious disadvantage of the isolating-inflexional-affixing typology is its vagueness and the comparison of whole languages rather than their parts. No language will fit neatly into a type, and any language will show inflexional, affixing and isolating tendencies. Criteria for typing languages by syntax have also been proposed. Typological classification will ultimately be based on all three systems of language, the phonological, the grammatical, and the semantic.


English
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Norwegian
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Italian
Spanish
Portuguese
Catalan
Rhaeto-Romansch
Irish
Welsh
Breton
Gaelic
BALTO-SLAVIC
Russian
Polish
Bulgarian
Serbo-Croatian
Czech
Lettish
Lithuanian
Thraco-Phrygian
Albanian
Greek
Armenian
Hittite
INDO-IRANIAN
Kurdish
Persian
Hindi
Bengali
Gujerati
INDO-EUROPEAN

Only major branches and lines of descent are shown.

Summary

Language is always changing. As a result of such change and the spread of peoples over the world, single languages come to give way first to dialects, then to clusters of different but related languages.

Using the materials of the languages of today and written records of older forms of language, as well as evidence from his history, linguists explain the resemblances between these languages as 1) chance, 2) borrowing, 3) genetic, or 4) universals of language. If resemblances between languages are due to borrowing, the peoples who spoke the languages must have been in contact sometime in their histories.

If the resemblances are genetic, the peoples speaking the languages once spoke the same parent language and are related.

English belongs to the Indo-European language family. Its closest relatives are Frisian and Dutch. Indo-European includes languages in India, Iran, Russia, Eastern and Western Europe.

Other major language families of the world today are Uralic, Altaic, Afro-Asiatic, Niger-Congo, Malayo-Polynesian, and Sino-Tibetan.

Languages that have no known relatives and are considered language families with one member, are Japanese, Ainu, and Basque.

The status of language groups like Paleo-Siberian and Austro-Asiatic is yet to be conclusively determined. New Zealand and the interior of New Guinea have not been studied enough to yield a reliable classification.

Smaller language families, in number of speakers today, are Caucasian, Khoisan, Nilo-Saharan, and the American Indian languages of North and South America.

Classification of languages into types, on the basis of phonology, grammar, and semantics, reveals that language, despite its diversity over the globe, is everywhere possessed of universal features.

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Chapter 5

CULTURE AND COMMUNICATION

This section will deal with communication systems, linguistic or otherwise, from the point of view of the context of culture. The previous sections, abstracting the communication process and the linguistic system from social use, and studying them as a system of rules and arrangements -- structures in their own rights -- provide a background and define concepts for the understanding of the role of communication in the lives of people. Language is a constant companion to all human behavior. It is both a biological and a cultural phenomenon. Language depends on the biology of man. It has played a part in the evolution and survival of our species. It is also the medium through which education is carried out and the way we learn the rules of our culture. It is an important bond in the establishment of society.

Nationality and Language

The idea of nationality is one area where language and culture overlap. Nationality is essentially a feeling of distinctiveness or unity. Two peoples can share the same culture and speak different languages and feel themselves to be separate. The Hungarians are similar in culture to the Slavs, their neighbors in Central Europe, yet the Hungarians speak an unrelated language and consider themselves distinct from the Slavs. British and Americans speak the same standard language and are closely related in culture, but their geographic separation has been followed by political separation and both consider themselves of different nationalities. Neither language nor culture is equivalent to nationality, yet each contributes to the formation of the idea of nationality, which in turn may initiate a desire for political independence for those having this feeling of unity. Which is most important: the difference in customs, the language gap, or the political unity that marks off the Dutch from the Germans, or the Italians from the Spanish? Although these determinants act in complex ways, language is more often the important factor in crystallizing national sentiments. Culture is spread by language, yet culture can either aid or hinder the effect of linguistic segregation, or it can remain unimportant. It is hard to think of a people who cannot understand one another's speech developing a feeling of nationality.

Language is a creator of society inasmuch as a common language often serves to affiliate people living together. Language has been a major factor in determining human groups. In recent history, political groupings are often linked with language, and languages are also associated with cultural inventions, such as religion. Consider some examples. Danish, Norwegian, and Swedish speakers can understand one another. By linguistic standards the speakers are representatives of different dialects of one language. Because of their political status, however, they are regarded as different language communities. Similarly, Lappish is usually regarded as one language. In reality, it covers several mutually unintelligible language communities. In Yugoslavia there is antagonism between the Catholic Croats who use our Latin alphabet and the Orthodox Serbs who employ a Cyrillic script. The sub-continent of India was divided into the political entities of India and Pakistan on religious grounds, and this has resulted in a variety of language problems for the area. The large number of French speakers in Canada has prompted a call for the assumption of political distinctiveness. The movement is further advanced by a religious separation: the French Canadians are Catholics in a country of Protestants.

Switzerland is 72% German-speaking, 21% French, 6% Italian, and 1% Rhaeto-Romansch. In the USSR, 78% of the people are Russians, plus forty-six other recognized cultural and linguistic groups.

Many nations, in the political sense of having a single government, contain more than one nationality, a people of common origin, tradition, and language. On the other hand, a nationality can comprise a number of nations: the Australians, New Zealanders, Canadians, and British.

In the creation of nationalities, language is always a factor and usually a basic one. Political groupings, states, nations, and empires are not always co-terminous with nationalities. Speech and culture tend to form a unit. A change in speech without a change in culture is hard to imagine. Whenever a new language, Arabic, Sumerian, Chinese, Greek, or English has been introduced, it has carried with it religion, literacy, and often some new way of life. The new language has formed a different civilization. The linkage of language and culture can be seen in the degree that both contribute to the feeling of nationality.

Culture and speech are related. But differences in language and culture are not linked with physical differences in men. The only connection between language and culture on the one hand and race on the other is a historical one. It is possible to substitute a whole new language or culture for an old one without changing the physical type of the members of the population, as in the case of the American Negro.

The Whorf Hypothesis

Whether the language one speaks imposes a patterning on thought has been a subject of discussion for anthropologists and psychologists for the past two decades, under the name, "The Whorf Hypothesis." Benjamin Lee Whorf made the claim that the language one uses, in particular its grammatical categories, controls the way we see and interpret the world, influences our concepts, and creates, for speakers of different languages, a different world view. Thus, the speakers of different languages are thought to have different pictures of their environments.

Whorf believed there was no radical difference between world views of the language communities of western civilization where grammatical categories correspond very closely. He based his hypothesis of linguistic determinism largely on the comparison of English and Hopi, an American Indian language of the Southwest which he had studied intensively. Whorf concluded from his study that the different grammatical rules of Hopi might mean a different way of thinking of things, and consequently of behaving, on the part of the Hopi speaker. Hopi and other "exotic" languages express concepts very different from those of the speaker of European languages. Many of the things the Indo-European speaker takes for granted are not even considered in other language families: singularity and plurality of nouns, for instance, or certain notions of space and spatial relations, or concepts of time. On the other hand, the "exotic" language speaker will make unfamiliar distinctions having to do with the shape of an object, the persistence of an event, or the measurable validity of a statement. All these must be specified by the speaker and designated in almost every sentence. The Navaho Indians, neighbors of the Hopi, have a verbal system that requires a speaker to consider whether the action he is describing is in progress, takes place at an instant, occurs now and again, is in the past, is delayed until some time in the future, or if it is a future action just about to occur. There is a further category to indicate the absence of motion. When an English speaker says "It will fall," the Navaho has to make a choice between several types of "will" his language provides; he also has to choose how to designate the nature of "it." For the English expression "It will fall," the Navaho can say *ntookhos*, "it will move downward eventually, as a thin rigid object," or *ntootil*, "it will move downward eventually as a slender flexible object," or, *naakhees*, "it moves downward instantly, as a thin rigid object," or *naateel*, "it moves downward instantly, as a slender flexible object."

Considering the differences in how languages handle time, space, and matter, Whorf was asking if all men have the same concepts of time, space, and matter, as given to them by experience, or are they conditioned in part by the structure of particular languages? His conclusion was that ideas about time, space, and matter are given to men in different ways depending on the nature of the language. Whorf's hypothesis has yet to be scientifically proved or refuted. There are several common sense arguments against it. If it were true in the strictest sense, translation would be impossible. Whorf himself made a successful attempt to explain what it is like to think in Hopi. He had the skill in English to express meanings which he believed were more suitable in Hopi. Whorf probably underestimated the potential of any language to express matters of any sort in some way. Certain critics of the hypothesis tell us that it is obvious that different peoples cannot have different ways of perceiving time, space, and causation because anything other than a common, accurate perception would be hazardous to their survival.

There is one experiment that has shown that there is a connection between language and thought, if only a restricted one. The ability to recognize and remember colors was better for speakers who had color names available to them in their language than for those who did not. The Zuni Indians of western New Mexico have a single color term that is coded in English as yellow and orange. The experiment showed that not one monolingual Zuni could correctly recognize orange or yellow. In other words, the ability to remember an experience and the ability to encode it are related.

There is good evidence that the language one speaks, in particular the vocabulary it offers, does have an influence on the thinking one does. Language allows us to organize the world. Where language is limited, the world is also limited. And, as has been pointed out, the reverse is true: where the world is limited (i.e., the technology of a culture) so is vocabulary.

Over and above the hypothetical connection between the grammar of a particular language and the influence this has on a speaker's thought processes, language and thought are intimately connected. The internal dialogue, communication with the self, is a very important function of language in planning and problem solving. The question of whether it is possible to think without words is a difficult one, depending on the definition of "thinking." Animals without language can solve mechanical puzzles; chimpanzees quickly unfasten complicated locks, for example, and humans often use non-linguistic symbols, imagery, to solve concrete problems. Complex mathematical problems employ a set of non-linguistic symbols and relationships that can be mastered by otherwise languageless and retarded individuals. We do most of our thinking with language, however, and it is this attribute that makes us human. The old definition of man as the reasoning animal presupposes his possession of language as a tool for thought.

Writing

The rise of civilization is attributed to two factors: the creation of cities and the invention of writing. Writing made possible the preservation of records and the storage of knowledge in a form more reliable and expandable than the individual human memory.

Writing is a form of culture. It is often, and mistakenly, thought to be identical with language. Writing is an invention. Whether the idea of representing sounds by visual means was conceived by a single culture and passed on to other peoples, or whether different cultures independently came to invent writing is a question that archeologists and their future discoveries will have to answer. What we are certain of is that man has known how to write for only a few thousand years, since the time writing came into use in ancient Mesopotamia and Egypt. The invention of writing came late in man's history. The beginnings of human speech, on the other hand, go back much, much further. Until the past 150 years writing was restricted in those societies that possessed it to a very few people: government officials, religious leaders, and the upper class. Today the number of people in underdeveloped countries who can write is still small. UNESCO statistics report that, in 1950, two out of five adults were illiterate, a total of 700 million illiterate adults in the entire world.

Three writing systems that have been devised in the history of mankind, the Egyptian, the Sumerian, and the Chinese, may actually be of one origin. All three writing systems have undergone a series of improvements, but only the Egyptian developed an alphabet, later refined by the Greeks. The alphabetic method of writing (really a phonetic method), one of several possible writing systems, spread from the Greek to Latin and thence to the languages of modern Europe.

History of the Alphabet

The earliest Egyptian texts, from 4,000 B.C., consist of some 500 symbols, called hieroglyphs. The symbols are of two kinds. The first kind is pictorial representations of the objects they stand for: a picture of a head will mean "head," that of a lotus will mean "lotus." The second type of hieroglyph is not so directly related to the word it represents. For example, a falcon will stand for "king"; a picture of a seated man with his hand to his mouth will mean "eat." The earliest hieroglyphs represent words for actions and abstractions as well as for objects. In later Egyptian hieroglyphs, symbols came to stand for syllables. This change shows up first in the use of the same hieroglyph for homonyms. The word for "ten thousand" and that for "finger," and similarly, the word for "swallow" and the word for "large" were identical and represented by the same symbol. The sequence of sounds in "swallow" and "large" entered into larger constructions, and the symbol came to be associated with its phonetic value in the manner of a rebus puzzle. Finally, some symbols came to stand for words with only one consonant. Through centuries, the value of the symbol was extended to all occurances of the consonant. In time twenty-four of the symbols came to represent syllables with a single consonant. The Egyptians did not designate vowels in their *logographic* system of writing. The symbols at their most developed stage indicate words or syllables, the consonants being the only defined elements of the syllable.

The original alphabet, from the tenth or eleventh century B.C., was invented in ancient Palestine or Syria. We know that this advance was not duplicated elsewhere in the world. The North Semitic alphabet, as it is called, was different from the Egyptian system in that all the symbols stood for separate consonants, and not for whole words *or* consonants. The twenty-two letter alphabet contained no vowels but could be understood because of the nature of Semitic languages. In these languages words are made up primarily of three consonants which form the root and do not change, and of the vowels, which by changing indicate grammatical relationships. For example, in Modern Hebrew, *k-t-b* stands for the whole idea of writing. It becomes *koteb*, "he writes," *katab*, "he has written," *ektob*, "I shall write," and so on. The reader recognizes the word by the fixed consonants and supplies the vowels from the context.

The notion of phonetic writing was carried to Greece around the ninth century B.C. The Greeks made a modification essential for their language: they introduced vowels. The Greeks also added symbols for accents, for prosodic features.

Off-shoots of the North Semitic alphabet -- the Arabic system, that of the Mongols, and that of the Georgians (among others) -- added vocalic symbols late in their history, probably under the influence of systems derived from the Greeks. The Indic script, Brahmi, and other South-Asian writing systems are derived from the North Semitic.

Cyrillic, the writing system that became established in Russia and has been adopted for a number of Slavic and non-Slavic languages, is based directly on the Greek alphabet. The main inheritors of the Greek alphabet, from our point of view, were the Romans. The Latin alphabet with very little modification is what is used today to represent English and the languages of Europe (except where Cyrillic exists). It is also the alphabetic system that is most used today for previously unwritten languages.

Writing systems may be classified into three groups, with transitional types: 1) *logographic*, with symbols representing words (early Egyptian); 1a) *logo-syllabic*, with symbols representing words or syllables (later Egyptian); 2) *syllabic*, with symbols representing syllables; 2a) *syllabic-alphabetic*, where symbols represent consonants with different vowels (North Semitic); and 3) *alphabetic* (Greek).

The basic idea of the alphabet has never changed. Alterations were made to suit other languages (the addition of new symbols), but the first changes were changes in the form of the characters. Different scribes used different methods, and the style of writing changed with the materials at hand. The appearance of the letters changed rapidly.

We should note that our own writing system contains logographs, symbols indicating words and morphemes, as well as the basic alphabet. Numerals such as 4, 8, and so on, and symbols like O.K., $, @, ¢, and & are all logographs. Words like rough, through, cough, hiccough, lead, led, etc., are also logographic symbols since our alphabetic system is used so inconsistently. Alphabetic systems with one symbol for each individual sound are easy for native speakers to learn. The Hungarian language has a very consistent alphabetic system; children spend only a few months learning to read and write the language they speak. Chinese children, with a logographic system to master, take many years. English speakers, because of the inconsistencies of spelling, also take many years.

Another system of writing, the Sumerian, is called cuneiform. It was developed around 4,000 B.C., and consists of wedge-shaped forms incised into clay tablets. Cuneiform script was taken over by various peoples, including the Indo-European Hittites, and then disappeared about 400 A.D. until discovered and deciphered in the 19th century. The cuneiform system is a combination of logographic and syllabic principles. Cuneiform writing, originally pictures, became stylized into wedges due to the nature of the clay on which it was written.

Both Egyptian and Sumerian scripts have *determinatives*, symbols used with nouns to indicate their classes and grammatical functions. These markers have no phonetic value and are somewhat like our own use of capital letters to indicate English proper nouns.

In addition to creating stone monuments of their hieroglyphs the Egyptians subsequently developed simplified and stylized cursive scripts for writing on papyrus.

The Chinese system of writing has remained logographic. The system was taken over by the Japanese for the presentation of their language and modified into a syllabic system. It is interesting that in Chinese a special method of pairing signs was invented. One sign gives phonetically the general sound, while the other gives logographically the general sense. For example k'o "river" is written *ko* "fruit" plus *shui*, "water." In their stylization from pictures, the Chinese symbols took on a different appearance when a special ink brush was invented.

While writing is an attempt to represent pronunciation, it is a mistake to think that the pronunciation of words is determined by their spelling. English writing often fails in this regard. Writing systems are very conservative, i.e., they do not change as fast as language changes. Written forms remain stable long after the spoken forms they represent have changed. Many of the traditional spellings of English were at one time an accurate phonemic transcription. In time pronunciation changed without a corresponding change in writing. The seeming irregularity of English spelling is often times consistent, however, for this very reason. When pronunciation changes over time, it, too, changes consistently (see Chapter 4).

During streams of speech sound is being produced in a varying continuum rather than proceeding from point to point. The listener groups the sounds into phonemes. He listens to the sounds of speech and hears the forms of language. Since writing is a graphic representation of speech, the most reliable writing system is one in which meaningful units of speech, represented by letters, correspond to phonemes.

There are obviously styles appropriate to writing but not to speaking. The meaning of *phrase* versus *frays*, or *sword* versus *soared* is attached to its written form and context, and the visual appearance of one does not suggest the other. The suffix *-or* in *advisor* may be considered more prestigeous than *-er* in *adviser*, and *Smythe*, more upper class than *Smith*. Spellings such as *sez*, *wimmen*, *sassiety*, *whut*, and *wot* are visual signals with a cultural reference, where misspellings substitute for dialect pronunciation.

Although there are associations that written messages convey well, other aspects of writing do injustice to the speech it is trying to represent. Punctuation is a poor imitation of intonation features, and the paragraph is an invention that has no counterpart in speech.

Second Language Learning

Any person can learn any language as his mother tongue (his first language) with as much ease as any other. There is no such thing as one language being more difficult to learn than any other. It can be shown that, all other things being equal, all children have an equal competence at an equal age in the language of their environment. The many years of practice in the native language before reaching adult competence imposes a certain rigidity in the speaker's habits, however. In attempting to learn a second language, sounds that do not occur in the native language are difficult to produce; either they are not contrastive in his own language, or the actual physical "stretching" of lips, tongue, or pharynx may take a good deal of practice before a sound is produced that is acceptable to speakers of this second language. The second language learner may have to accustom himself to rules of grammar very different from those of his own language. In this sense, and only in this sense of learning a second language, is one tongue more difficult than another. It depends on the starting point. German, since it is similar to English in many ways, will be easier for an English speaker to learn than, say, Chinese. All languages are equally difficult (or easy) to learn as first languages. The "difficulty" of learning a second language depends on the similarities -- phonological, grammatical, and lexical -- between the first language and the second language to be learned.

Meaning

Semantics, the study of meaning, is the least developed field of linguistics and the part of language we know least about.

An important aspect of meaning is that it is always arbitrary. There is no relationship between the three phonemes of cat and the animal that the three phonemes, in this order, signify. Any combination of phonemes could be taken to mean the animal "cat" if everyone agreed to follow the rule that the phonemes "meant" just that, "cat." There is no relationship between any of the phonemes of cat in any language and the actual animal.

Everyone knows that the meaning of a word differs according to its context. The meaning of cat is not the same in "My cat caught a mouse" and "That girl Mary is a cat." The meaning of cat is the sum of all the possible responses to the word, and as such a description of the meaning of cat is an ambitious project.

A special meaning for meaning refers to linguistic meaning where the sense of words, such as to, are defined by their distribution in sentences.

The philosopher Wittgenstein put the matter of meaning in a nutshell when he said, "The meaning of a word is its use."

Emotive Speech and Gestural Communication

It is obvious that much of the function of language is to communicate, to convey information. It should not be thought, however, that this is the *only* function of language or of communication systems in general. Communication in many instances is not effected for the purpose of information exchange at all: it can give emotional release, it can reassure. Communication can be used not only to communicate facts, but to establish facts.

Psycholinguistics is the name given to the study of the interaction of the individual and the code he uses to communicate. In any message there is a distinction between constant and impersonal coding and coding that is variable and personal. No matter what tone of voice in which they are uttered, the meanings of *cat*, *tree*, and grammatical elements like *-ing* are recognized and constant. These meanings exist in the linguistic code itself and are available to anyone who knows the code. There is also emotional coding in the message. There are, besides the primary, basic meanings of *cat*, many others that are conditioned by the non-linguistic environment in which it is uttered. *Cat* can be produced in a very special tone of voice, in a special way (with a shrug of the shoulders, for example), and in a special context. The coding of a linguistic message to give information beyond that of the words themselves -- to color the message -- is basically of two kinds, *paralinguistic* and *kinesic*. Paralinguistic refers to vocal coloring of a message. For example, a "b-i-i-i-g cat" is much "larger" than a "big cat." Kinesic coloring is the addition of body motions and facial expressions to the linguistic message. In both these ways the speaker gives his audience his point of view, his emotions if you will, concerning the message or even the audience (eg. sarcastic intonation, etc.).

The distinction between the code and the message (or the speech act) is one of the important achievements of modern linguistics. The confusion of code with message is largely responsible for misleading views of emotive language. Certain elements of language, in fact any property of the linguistic code, can be used in any language to implement an expressive function. Linguistic features such as pitch and loudness, as well as body posture, serve to convey the emotional attitude of the speaker toward his audience and toward the subject of the message. The speaker of a language has at his disposal various devices which enable him to charge his messages with emotion, while at the same time leaving the linguistic meaning clear.

Tones of voice and movements used as signals are differently conditioned by every cultural system. For the most part they are learned, arbitrary, and patterned. There is an English system of body movement, for example, that is communicable in spite of some differences to Americans. The French gestural and postural system is different. A person aware of gestural differences, when shown a series of films of the former Mayor LaGuardia of New York speaking Italian or Yiddish or American English, will be able to tell which language he is speaking even when the sound is shut off. LaGuardia's movement patterns change dramatically and systematically from language to language. When learning a foreign language it is important not only to master the grammar and the phonetics, but also to assimilate the gestures that accompany the particular language. If, when speaking to someone face-to-face, a person uses the wrong gestures, the consequences may be worse than the alienation resulting from merely a foreign accent.

The cultural origin of gestures is evidenced in the different ways of indicating "yes" and "no," of pointing, and of greeting found throughout the world (see W. LaBarre in Sebeok, Hayes, and Bateson, ed.). For example, shaking the hand in front of the face with the forefinger extended is the Ovimbundu sign for "no," while Malayan Negritoes express negation by casting down their eyes. The Semang thrust the head forward to indicate "yes." In India ways of indicating affirmation take on the slight variations of dialects: in Bengal the head is moved in an arc from shoulder to shoulder four times; in the Punjab and Sind moving the head in an arc towards the left shoulder, once, stands for "yes"; in Ceylon a movement of the head downwards to the left indicates affirmation.

The American manner of pointing with the forefinger, while the other fingers remain curled towards the palm, is a gesture with a limited distribution. American Indians and other Mongoloid peoples point with their lips. Other groups use eye-movements to point, or chin and head movements, or head movements alone.

Greetings vary greatly from culture to culture. The Copper Eskimo welcome strangers with a sock of the fist on the head or shoulders. The Amazonians of the northwest slap one another on the back as a form of greeting. Polynesian men greet one another by embracing and rubbing one another's backs. Spanish-American males greet one another by embracing first with their head over the right shoulder of the partner, three pats on the back, then with their heads over the left shoulder of the partner and three more pats. The old form of greeting in Torres Straits was to bend the right hand into a hook, and in this way scratch the palm of your partner while he is scratching your palm. When two Kurd men meet, they grasp one another's right hand, raise the clasped hands, and alternately kiss the other's hand. Needless to say there are many more kinds of greetings all over the world and, of course, many other kinds of gestures.

The arbitrariness of non-verbal communication signals makes for a good deal of international misunderstanding. Consider hissing. Hissing in Japan (by sudden breath intake) is a sign of politeness to social superiors. The Basuto applaud by hissing, but in England hissing is rude and indicates displeasure and disapproval of a public performer. The Chinese hate to be touched, slapped on the back, or even to shake hands. An American could easily avoid offence by omitting what are to him gestures of friendliness. Americans interpreted the hands-over-the-head self-handshake of Khrushchev as an arrogant gesture of triumph, but Khrushchev seems to have intended it as a friendly gesture of international brotherhood.

Everything a human being does, his movements, looks, tone of voice, and style of speech, can communicate as long as there are interpreters to explain it. There are two kinds of codes, those with a fixed value which are part of a communal code (like "yes" and "no," pointing, etc.), and those which are conditioned, either contextually or personally. Examples of a context defined code are to be found in the sarcastic use of gestures. A salute to someone who has given an order is a proper gesture of respect in the military, but a negative comment on an improper statement when the order is given by a close friend. Personal codes are innumerable and usually the motive for their use is secrecy. All that is necessary is that two people agree on a meaning for an arbitrary gesture or sign. One example is a recognition code: "You will know it's me because I will be wearing a rose in my buttonhole and carrying Time magazine." Another example is the private "help!" signal that many couples have devised for social situations. These in turn can be context coded. A "help!" signal may mean "let's leave now" or "get me away from this bore."

Language and Culture

There are few if any areas of culture that are as diverse as language. The range in modes of speech is enormous. Languages, like cultures, are extremely divergent. No two societies possess exactly the same way of speaking. The diversity of languages everywhere, plus the fact that no "primitive" languages have yet been discovered, leads us to conclude that language is one of the oldest of human faculties. In fact, no true culture was possible until language came into being. Language is at least as old as culture and is the faculty which makes us human.

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LANGUAGE

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introduction

It has been said that man has two great advantages over all other living creatures. First, man knows how to make and use tools in a variety of ways to insure his survival in the world he inhabits. Probably his most important asset, however, is his development and use of language. Because he has language, man is able to live and work with others and share with them a common culture.

Most of us take our language for granted. We rarely stop to think about its importance in everything we think about and do. Yet language plays a significant role in every aspect of our daily lives.

This book is designed to help you to understand the importance of language in man's life, and to introduce you to some significant features about language which you may not have thought about previously. Obviously, in a work of this length it would be impossible to examine all aspects of language. Hopefully, you may wish to study other books about language after you have read this introductory work. At the end of each chapter there are certain exercises and activities which you may find interesting and which may help you to remember the important points brought out in the chapter.

Finally, for those who become interested in the subject of language, there is a carefully selected list of books about it which students should find readable and informative.

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Chapter One

all men have language

People live in many different locations throughout the world. They also have developed different approaches to solving the problems they face daily in their lives. All men, for example, must obtain food and water and build shelters if they are to survive. They must have certain rules which govern their behavior, for all men live with others in some type of society. *Culture* is the name given to the common ways of behavior of a group of people and the behavior and customs passed on from one generation to another within the group.

In studying the cultures of various people who live in the world, anthropologists seek to find out how men solve such problems as securing food, building shelters, living together, and insuring that their societies and the individuals in them survive. One of the most interesting facets of culture is the language that people employ in their lives. For without language it is doubtful that men could live and prosper as they do.

All Men Have Language

Neither anthropologists, explorers, nor travelers have ever found any group of human beings inhabiting any section of the world who did not possess a well-developed language system. Even men who live under the most primitive of conditions, such as the Arunta tribes of Australia, have a developed language which is suitable for their everyday needs. Some languages are shared by only a few hundred people while others are spoken by millions. All languages, however, serve the identical purpose for those who speak them. This purpose is to communicate with other men.

Only Men Have Language

Linguists, or scientists who study language, have found that language is *species specific.* By *species specific* linguists mean that only men possess true language. Language is more than a series of noises. Many animals are able to make vocal sounds, and some seem to be able to communicate with each other to a remarkable degree. Ants seem to be able to convey warnings of danger or to inform other members of the colony where a source of food is located. Bees are able to communicate to others the location of a source of nectar. Similarly, birds produce a wide variety of sounds in mating or in warning intruders away from their nests.

Most mammals also emit a variety of vocal sounds which serve special purposes. Your dog can let you know whether he is hurt, hungry, playful, or defending the premises. Some animals seem to have a fairly wide range of sounds. Scientists, for example, are presently studying dolphins because they seem to be highly intelligent and able to communicate with each other in rather complex ways.

Compared to man, however, the communication system used by animals is simple and limited both in quantity and quality of sounds produced and in the meanings expressed. True language is systematic; it has symbols representing objects, persons, or ideas. For this reason, the language of one group of men can be learned by others. The nature of language will be discussed in more detail in Chapter Three.

The Importance of Language

It has been suggested that language is one of man's greatest assets. Indeed, language serves many purposes. Language helps men to live together, for it enables them to work and play together cooperatively. It would be difficult for a group of men to build a skyscraper or an automobile without language. Even a fairly simple enterprise, such as playing football, would be nearly impossible without a language which could be used to explain the rules, direct the players, and keep score.

Language also helps men share experiences. Not only can one person tell another exactly what happened, but he can also relate his feelings and reactions to the experience. Thus, a young man can tell his friend how unhappy he is because his girl has refused his invitation to a dance. A teacher can tell his class about his summer trip to Europe. A grandfather may tell his grandchild how far he had to walk to school when he was a boy because there were no school buses then.

With language we can even communicate our thoughts about the future. A small child can tell about his excitement and anticipation over the coming visit from Santa Claus. A student can talk about his plans after he graduates from high school. A parent can warn a child of the dangers involved in playing in the streets.

By comparison, the sounds made by animals are extremely limited in their variety and significance. One animal cannot tell another about something that happened earlier in the day. A bear, for instance, cannot tell other bears about the huge fish he caught for breakfast. A mother fox cannot tell her cubs about the dangers they face from hunters with shotguns. A young elephant cannot listen to his elders tell about events that happened before he was born. A dog cannot tell other dogs why he likes his home. Man can do all of these things and more, regardless of the language he speaks.

By use of his language, man gives orders, understands directions given by other people, describes the appearance of objects in his environment, speculates about a past or future event, expresses his attitudes and beliefs, tells jokes, entertains his fellows, and thinks or reasons about problems. Much of what he learns, he learns through language. In fact, he learns much of the culture of his society through language and is thus better able to live with others.

Why Anthropologists Are Interested in Language

Since language is so vitally important to humans and because the language men use tells about their social habits, anthropologists are keenly interested in language. Obviously, the anthropologist would have difficulty studying the beliefs, the social organization, and the institutions or technology of a group of people if he knew nothing about their language. Even if the anthropologist had the services of an expert translator, he would not be certain of the accuracy of the translation and many significant ideas might be overlooked.

Generally, an anthropologist studies the culture of other people more satisfactorily if he can talk with them in their own language. Language also provides important clues about how people think, what is highly regarded, what is held sacred, what is forbidden, and what relationships people have with each other.

The systematic comparison of one language with another is also important. Such comparisons enable the scientist to determine the ways in which one society has interacted with another. Whenever two groups of people have extensive relationships, their languages are influenced. Often words are borrowed or exchanged by both languages. By studying words that have been exchanged in languages, clues can be found concerning the extent that trade, commerce, war, conquest, or other contact has taken place between societies. The English language contains many words that were borrowed from the Normans who conquered England in 1066. For example, *chair* comes directly from the Old French *chaiere*, and *table* is spelled the same in English today as in Old French.

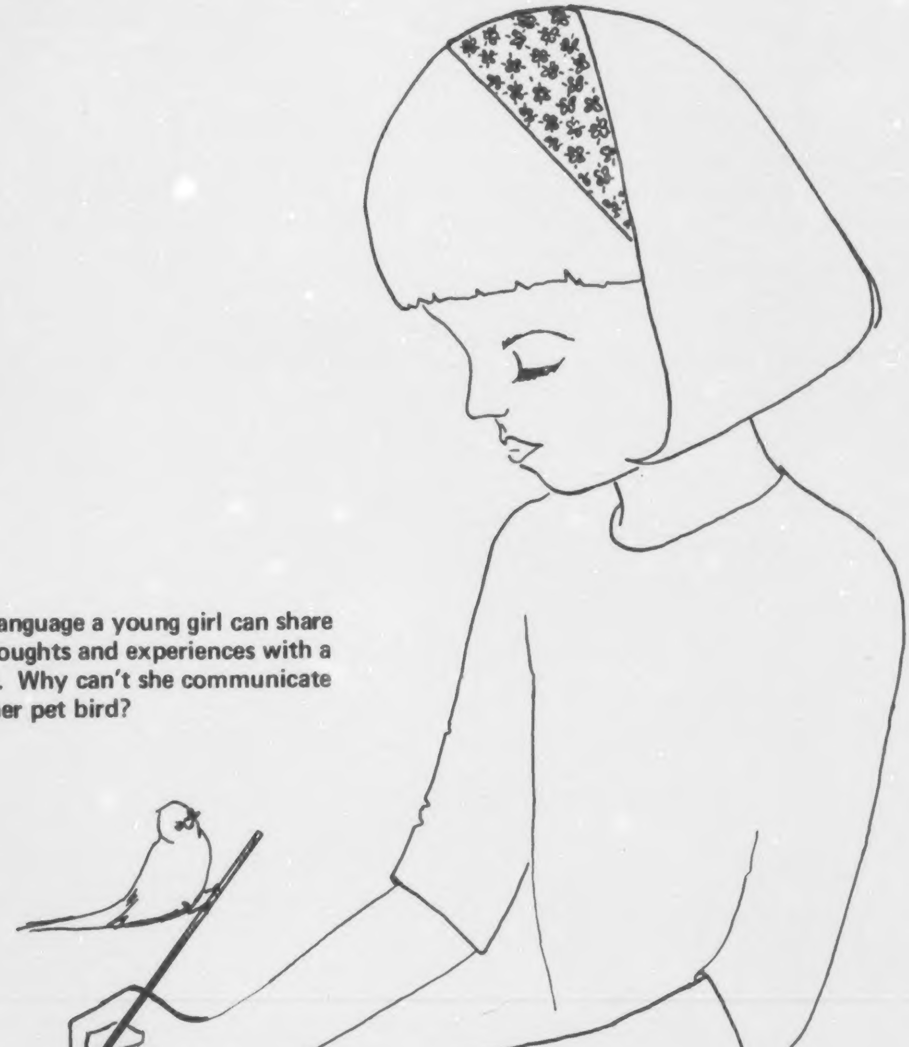
English has continued to borrow from other languages. Words like *chauffeur, buffet,* and *cinema* from French; *bungalow* and *khaki* from Hindi; and *adobe, chile,* and *rodeo* from Spanish are examples of words borrowed from other languages. The largest group of anglicized words (foreign words adapted to English usage) comes from the Latin and includes such words as *alumnus, formula,* and *index.* The second largest group comes from the Greek and includes such words as *analysis, basis,* and *criteria.*

An interesting example of what happens when a language takes in many words from other languages is in the use of English law terms. Because of Germanic, Roman, and French influences, English legal terms are often redundant. This means they say the same thing more than once. A lawyer may begin a will with the phrase, "I do hereby will and bequeath..."; "bequeath" means "to will."

Summary

Man, and only man, of all the living creatures on earth possesses language. Furthermore, all men, regardless of how primitive their culture appears to be, have developed some form of language. The language that is used by any group of humans reflects their culture. Language enables men to live together and to maintain and expand their cultures. Anthropologists are keenly interested in the languages of men because it is impossible to understand how man lives and thinks without studying his language.

In the following chapter we will examine in more detail the many ways in which language affects our lives.



With language a young girl can share her thoughts and experiences with a friend. Why can't she communicate with her pet bird?

ACTIVITIES AND EXERCISES

I. Select several members of the class to represent a family group, i.e., mother, father, and several children. Without using language see if one member of the family can communicate with others in the following situations:

- a) The father has found a herd of animals and wants his sons to help him track down and kill some of the herd.
- b) The mother wants her daughters to help prepare some food for supper.
- c) A son wants to describe a beautiful animal he saw while walking through the forest.
- d) A daughter desires to let someone know she feels ill.
- e) A child wants to tell about the dream he had last night.
- f) The father wants to tell his children about God and religion.
- g) Mother wants to inform children about the history and tradition of their country.
- h) One boy tries to explain to another the game of tennis.

2. Play a recording of bird calls and animal vocal sounds. Listen to see how they differ from human language. How many sounds can you identify for each animal? Can animals use sentences? Explain.

3. Explain how language helps a social group to maintain its culture.
   - a) A Boy Scout troop
   - b) A Little League baseball team
   - c) A family
   - d) A club
   - e) A Sunday School class or other church group

4. Are there words or phrases which would be used more frequently in one group than in another? What are some of these?

5. Explain how language helps these workers to do their jobs:
   - a) Brickmasons building a house
   - b) A captain of an army company
   - c) Waiters in a restaurant

6. What words are unique to each group of workers?

7. Have some members of the class plan a series of charades. Do not let the class know what the charade is about. See if the class can get any idea of the charade without asking the actors any questions.

8. Play a tape recording of computer "language." What differences do you notice in the sounds made by the computer and the sounds made by a human speaker?

Chapter Two

how language affects our lives

All men live in some sort of a society. In fact, no one can survive without other people to assist him in meeting his physical needs. Social groups vary in the ways in which they are formed. Some societies are based on family or kinship relationships. Others have developed formal governmental institutions. Some societies may identify groups on the basis of race or religion.

Regardless of how it is organized, the society serves to help each member to fulfill his personal needs and to survive. Social groups work satisfactorily when each member understands his role, respects the role and status of others, accepts the customs of the society, and cooperates with other members in achieving common goals. A common language enables the various members of a group to communicate with each other more effectively so they can work and live together in comparative harmony.

Language Helps Bind a Social Group Together

Let us imagine that ten sailors were shipwrecked on an uninhabited island. In order to survive the ten men must find food and water and build some type of shelter. If all ten sailors spoke the same language, they would be able to work out a system: some could seek water; others, food; and the remainder, materials for building a shelter. Now imagine how difficult the task would be if each of the ten sailors spoke a different language. Under such circumstances there would be great difficulty in assigning jobs and otherwise developing the teamwork needed to do the work efficiently.

Another important feature of language is that it serves as a kind of cement which holds a group of people or a community together. Let us return to our illustration of ten shipwrecked sailors. Let us suppose that three of our sailors spoke English, three others spoke Italian, and three more spoke German. Probably those who spoke English would tend to group themselves together while working. The speakers of Italian probably would work together, as would those who spoke German. If the tenth sailor knew only Greek, he undoubtedly would feel left out of things. He would be at a great disadvantage because he could not talk with the others.

The Speech Community

Although the above example is somewhat over simplified, it illustrates the important point that a common language makes interaction among people easier. The opposite is also true. The inability to communicate makes it difficult for people to cooperate or establish relationships. Anthropologists use the term *speech community* to describe a group of people who share a common language. By studying the members and structure of the speech community the anthropologist is better able to understand the organization and culture of a social group. He can also study the relationships one speech community has with another.

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Speech communities vary considerably in size. Some consist of merely a few hundred persons who use the same language. In contrast, our English speech community consists of hundreds of millions of people. Because our speech community is so large, we can travel thousands of miles without being inconvenienced by not being able to communicate with people who live in other places. In Africa, however, this is not true. The continent of Africa is a land of many tribal groups with many different languages. Frequently a member of one tribe travels only a few miles from his home before he meets people with whom he cannot talk. He can communicate only through signs or with the aid of an interpreter.

People who speak the same language are drawn together and somewhat set apart from those who do not speak that language. It has been pointed out that a common language helps bind a group together. Territories which have more than one spoken language frequently have difficulty in organizing themselves for effective government. Some countries in which this is a problem today are Canada, Belgium, and India.

Since there are many different languages spoken by men, communication among all men is difficult. In fact, people who speak one language are often suspicious of people who have a different language. Because of the difference in language, they may feel that the beliefs, knowledge, or ideas of others are not worthy of study or understanding. Language then becomes a barrier to interaction among different groups.

Language and Thought

In the first chapter it was said that only humans possess true language. It probably is equally correct to say that because we have language, we are truly human. One important asset that man possesses is his ability to reason. It is safe to say that without language man would not be able to reason as he does. The ideas and concepts he deals with are given verbal labels, and he must express his ideas by using these labels.

The exact relationship of language and thought is not known. However, the relationship of the two is easily illustrated. For example, mental images can be brought forth by the use of language. If you are asked to think of a book, or a brown dog, or a chocolate ice cream cone, you can close your eyes and actually "see" a book, dog, or ice cream cone. Through previous experience you have associated a word with an object. When you hear or read a word, you are able to recall many of the object's important characteristics.

Furthermore, it is possible for us to combine many different characteristics to make our images more specific. If you are asked to think of a small brown dog with long ears and a short tail, you can do so. You know what a dog is, what being small means, how to select the color brown from other colors, and how to tell the difference between long and short, ears and tail. If you were asked to select the small brown dog with long ears and short tail from a group of five dogs, you probably would have little difficulty doing so. If all the dogs were small and brown, we could help you find the dog by using more definite descriptions. We might describe additional features and give measurements of weight and length. We might say that the dog's tail is four inches long, he weighs eighteen pounds, and his body length from nose to tail is two and one-half feet.

Language enables man to describe his environment more precisely than would be possible otherwise. There are some things in our environment which we can see, touch, or smell. These things are "concrete" objects. But there are other things that we cannot see, touch, or smell. These things are not concrete objects, but are *abstract.* Feelings and attitudes are abstract ideas.

If you could not speak, you could make someone else think of an object by pointing toward it, by drawing a picture of it, or by making some facial expression or motion to show something about it. For instance, if you wished to make someone think of a flower, you could act as though you were smelling a rose.

But suppose you wished to tell someone about religion. You could not point to religion. You could not draw a picture of it. Even if you could point to a church building or draw a picture of one, you would not be explaining religion. Religion is an idea.

However, if you could use language to express your idea in words, you could speak of God, the Bible, and the stories of Christmas and Easter to explain the Christian religion.

Some other examples of abstract ideas are freedom, honor, justice, government, and love.

All men are able to think about objects or events long after they have seen the object or experienced the event. Thus, it is possible to think about the experiences one has had in order to gain further understanding of what has happened or to try to relate one event with another. Thinking, as we know it, would be impossible if man did not possess language.

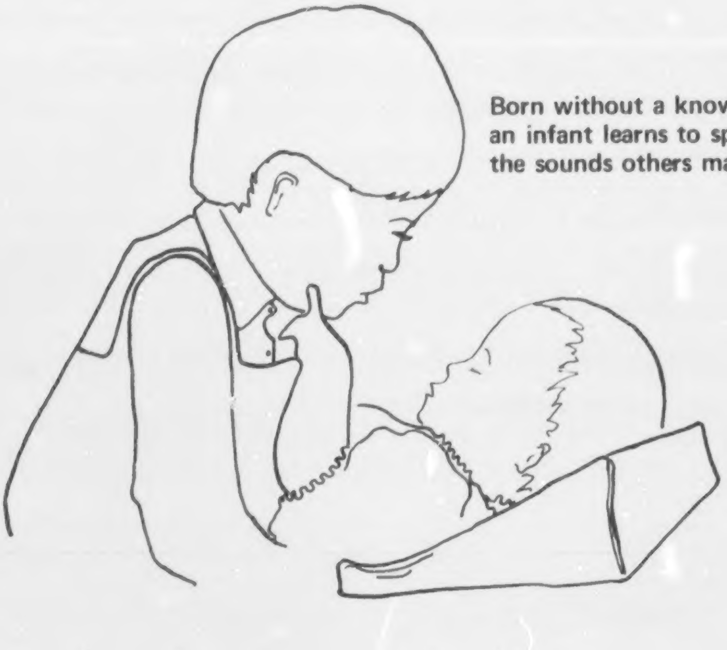
Language Is Learned

Man acquires language through the process of learning. Unlike other animals, many of whom make vocal sounds instinctively, no human infant is ever born possessing language. A newborn human baby can neither produce words himself nor understand those of his parents. An infant cries or utters sounds to indicate discomfort, hunger, or distress. The child's parents respond to his cries by feeding him, changing his clothing, or otherwise relieving his discomfort. The baby soon learns that the sounds he makes affect other people. At a later stage he reproduces the sounds that he hears other people make and still later associates certain sounds with objects in his surroundings. Generally, when a baby utters sounds that are intelligible, his parents respond. When the infant has learned that a given utterance brings the desired response, it is likely that he will repeat and continue to experiment with the production of speech sounds.

The speech of young English-speaking children leans heavily toward nouns. Thus, a two-year-old child's vocabulary consists largely of words like *mama, dada,* and *wawa* (water). Later he will add verbs and produce sentences such as *me go* or *want wawa.* He also learns to use adjectives and may say *nice kitty* or *big boy.*

By the time he enters school, the child knows the meanings of many words and how to pronounce them, and he understands the word order and structure of his language. He has learned his language as a result of normal everyday activities rather than through formal lessons. He imitates the sounds he hears others make and uses verbal labels for most of the objects he sees in his home and neighborhood. During much of his life he continues to acquire better language usage. He will continue to add to his vocabulary and learn to construct new sentences as he studies various subjects at school and gains a broader circle of acquaintances. In America and other literate cultures it is expected that he will learn to read and write as well as to speak his language.

The acquisition of language does not take place in isolation. Rather, language is learned as part of growing up. Every activity that a child participates in and every experience he has is accompanied by opportunities to learn and use language. He must learn words associated with the clothing he wears, the food he eats, the way he behaves with others, the games he plays, and even the way he looks and acts while doing these things. Much of what the child learns throughout his life can only be achieved by the use of language. It would be difficult, if not impossible, to learn proper manners, the religion of one's family, or to tell right from wrong without language. Certainly, learning the customs of one's social group would be difficult. The mastery of one's material culture and technology would be impossible without mastering the language of the society. Without language many important aspects of a culture could not be transmitted from one generation to another. Because language plays so essential a role, any child who has a physical impairment (such as defective hearing or a speech impediment) which slows down or prevents normal language development, encounters many problems in personal and social adjustment. We become socialized--learn the culture and values of our group--through language.



Born without a knowledge of language, an infant learns to speak by imitating the sounds others make.

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Language and Culture

Previously it was stressed that language helps men to live and work together cooperatively. When each member of a group speaks the same language, anyone can communicate his thoughts, needs, wants, and desires to any other or to all members of the group. Because the social group has a common language, it can plan and carry out cooperative projects which serve all of the members of the society. The language of any social group reveals many significant facts about the culture of a people. For example, the number and kinds of words related to law, government, science, architecture, religion, music, art, and other cultural traits reflect the extent to which these aspects of life have been developed. For instance, the language spoken by Ethiopians, Amharic, has fewer scientific words than do most European languages. This reflects the slower scientific development in Ethiopia. As science develops, they will borrow words, create new words, or modify old words to convey the new ideas.

Similarly, language reflects many significant details about geographical and environmental facets of a culture. For example, linguists have found that Eskimos use many words to describe snow, since they live in a section of the world where snow is an important part of their life. In English we use only one word to describe snow because snow is not such an important part of our life.

A careful study of a people's language also reveals much information about the way a social group is organized. Members of a social group do not communicate with each other in exactly the same way. A twelve-year-old boy speaks in a different tone of voice and uses different words when talking to a playmate than he does when he talks to his teacher or his minister. Adults, too, use different words and methods of expression when talking to children. In English, for example, we use the title Mr. or Mrs. when we talk with someone we do not know well or to someone who is older than we are. Adults tend to use first names when they speak to children. In some languages, such as French, there is even a special pronoun and verb that adults use with children or other adults they know well. By studying such patterns scientists are able to understand the status of various members of a society. Furthermore, language patterns reveal who and what is regarded as important or unimportant, superior or inferior, necessary or unnecessary, valuable or worthless. In this sense, it can be said that a careful study of a language helps the anthropologist to understand how men symbolize and order the world they live in.

Summary

It is difficult to discover a single aspect of our lives which is not profoundly affected by language. Language plays an important role in the lives of all men regardless of their patterns of culture. Because of language men are able to work and live together cooperatively. People who live together and share a common language are said to comprise a speech community. A common language helps people to achieve solidarity.

Language and thought are closely related. By his language man symbolizes much of his thoughts about himself and the world he inhabits. Language is learned,

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and children learn their language as they learn other things in their culture. Language reflects the culture of those who speak it.

Without language man would be greatly limited in handing down his knowledge and culture to generations that follow. Without language much of our culture would soon cease to exist. In this chapter we have talked a great deal about how language affects our lives. In the following chapter we will examine the nature of language.

ACTIVITIES AND EXERCISES

1. Some people believe that men would get along better if all spoke a common language. In the 19th century a Russian linguist developed a special language for this purpose. This language is called Esperanto. Look up information concerning Esperanto and report what you have found out. Do you believe that a common language would help to relieve world tensions?

2. Try to think of some part of your life where language is not important to you and other people.

3. Try to make a tape recording of the speech of any babies or young children you know. Study the recordings and compare their speech with your own.

4. What problems do translators face in trying to arrive at the exact meaning of a thought when they translate from one language to another?

5. Imagine that you are an anthropologist. Explain why a knowledge of the language of the people you are studying is necessary if you are to understand the following parts of the culture:

    a) kinship system
    b) religion
    c) folkways, customs, mores
    d) technology

6. Explain in detail why Eskimoes need many words to describe snow whereas we need only one. Why do you think people who live near deserts have many words to describe deserts? Here are some words which we use in English which are about different kinds of deserts: serir, hamada, erg, playa. What do these words mean? What is their origin?

7. Before the invention of the automobile, your grandparents had a great many words having to do with horses and horseback riding. Do you know many of these words today? See how many you can list.

8. Now see how many words you can list having to do with automobiles. Which list was the longest--the one about horses or the one about automobiles. How does the difference in your lists help explain this idea: "Language helps us to understand changes which take place in the technology of a culture."

9. How many speech communities can you name? Can you locate these on a map? How does the existence of speech communities help you understand why Americans feel closer to Canadians on our northern border than we do to Mexicans who are on our southern border?

10. Can you recall how you learned some parts of your language? Make a list of words you remember learning in a particular way.

11. Explain how these words not only describe a person, but also imply a relationship between the two:

    a) father-son
    b) husband-wife
    c) teacher-pupil
    d) corporal-private
    e) judge-accused
    f) attorney-client
    g) representative-electorate
    h) lessor-lessee

    Can you make up other examples of words which imply a relationship?

12. Many words in our language refer to things we can see, touch, taste, or smell, such as cotton, orange juice, bicycle; others make us think of an idea or group of ideas, not just one concrete object. These ideas are often called abstract. They may describe processes which we don't see, but merely think about or feel. Democracy is an abstract idea. Make a list of other abstract ideas.

13. One controversial sub-culture in the United States today is the "Hippie" movement. Try to find words ("dig," for example) that are common to the language of this culture. List these "Hippie" words and their meanings.

14. There is always talk about the lack of communication between adults and young people within their joint speech community. Do you agree? If so, why do you think there is a problem? Can you list certain words of phrases that are unique to teen-agers? How about a list common to adults?

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Chapter Three

the nature of language

In the previous chapters it was emphasized that all men, regardless of where or how they live, have language. Men use their language to express thoughts, feelings, and desires. Although many animals make vocal sounds or communicate with one another, the sounds they produce, gestures they make, or signs they leave behind do not make up a language. Only men have language.

Limitations of Animal Communication

Animals communicate with each other in a number of different ways. Some animals emit vocal sounds, while others produce sounds by manipulating various parts of their bodies. Crickets use their legs to produce a variety of tones. Some animals, such as ants, emit an odor, scent, or chemical secretion which attracts the attention of others. Certain birds stamp their feet in rhythmic patterns. Although these behaviors represent ways by which one animal communicates with others, they are not regarded as language.

The sounds that animals make while communicating may seem limited both in variety and number. Most often these sounds are produced to attract mates, secure food, or warn intruders away. Man, in contrast, uses language for many purposes. When one considers the fact that Hawaiian uses only 12 sounds, it can be seen that man's ability to use language is based more on his mental ability to use sounds in complex patterns rather than on the number of sounds he can make.

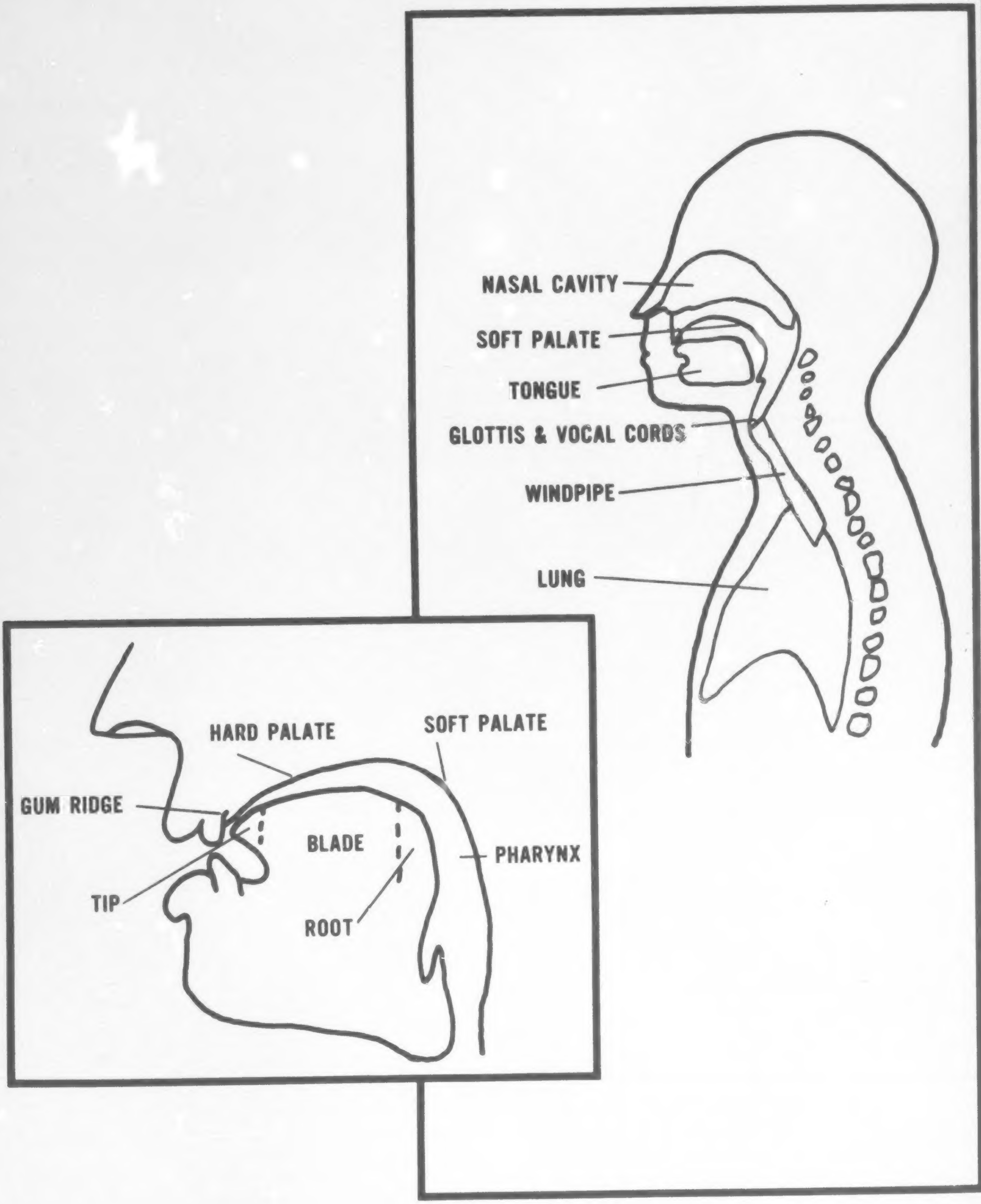
The sounds that animals make are instinctive use of their biological structure. For this reason, the sounds and signs produced by animals do not vary much from generation to generation.

Man, however, acquires his language through a complex learning process. No human infant is born with a knowledge of language or with the ability to use language. He learns the language of his culture by listening and observing those around him and by participating as a member of the group. In a complex culture such as ours, no one person knows the entire language. The amount of language a person acquires depends on both his ability and opportunity to learn.

Any Language Might Be Learned

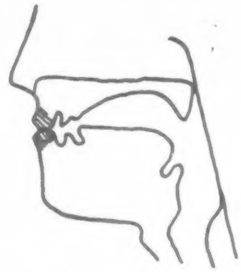
Although it is estimated that several thousand languages are in use throughout the world, any normal human being could likely learn any one of them without difficulty if he were born and reared in the society that used that language. In fact, many persons alive today are proficient in two or more different languages. Thus, man is able to learn the language of persons of another culture.

Let us imagine that a Japanese infant named Saito was adopted by American parents shortly after he was born. Saito's foster parents bring him to America, and he grows up and attends school in the United States. Saito would have no difficulty in learning English. In fact, he would encounter no more problems than would any other American child. Similarly, an American child adopted in infancy into a Japanese

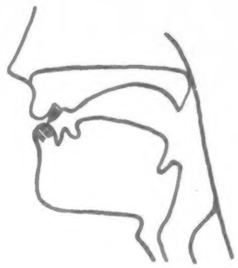

NASAL CAVITY
SOFT PALATE
TONGUE
GLOTTIS & VOCAL CORDS
WINDPIPE
LUNG
HARD PALATE
SOFT PALATE
GUM RIDGE
BLADE
PHARYNX
TIP
ROOT

SPEECH

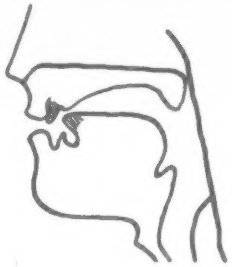
Systematic vocal sounds, of which language is composed, are produced by the lungs, larynx, tongue, lips, and teeth. Sound starts in the speech center of the brain, sending impulses to the chest, throat, and mouth. The diaphragm muscles curve against the lungs pushing a column of air up through the windpipe. This passage of air vibrates the vocal cords and escapes through the mouth to produce sound. The lips, teeth, tongue, gum ridge, hard and soft palate combine to form the vocal sounds familiar to you in the English language.



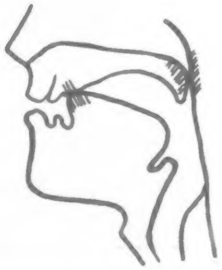
[p] or [b]
lower lip and
upper lip



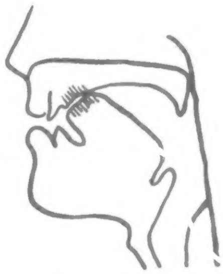
[f] or [v]
lower lip and
upper teeth



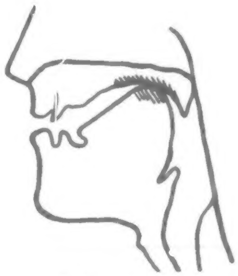
[ð] or [θ]
tip of tongue
and upper teeth



[n]
tip of tongue
and upper gums



[s] or [z]
front of tongue
and front of palate



[k] or [g]
back of tongue
and soft palate

family and reared in Japan would learn Japanese easily. If, however, Saito went to Japan at the age of fifteen, he would have difficulty learning to communicate with his relatives. Likewise, the American child raised in Japan probably would think that English was a difficult language to master compared to Japanese.

The reason children learn the language of their own culture so easily is that language is a central part of their lives. They have opportunities to learn their language every day at work and at play. They do not have to go to school or study it in formal lessons. They learn their language as they learn other parts of their culture. Furthermore, a child's mastery of his language is important because he cannot participate fully in his culture unless he knows the language used by members of the cultural group.

Organs of Speech

Another interesting aspect of language is that regardless of the language spoken the identical organs of the body are used in producing speech. (Although we talk about *organs of speech*, the parts of the body used in making sounds are also used for eating and breathing.) Whether one speaks English, Japanese, or French, the lungs, larynx, tongue, teeth and lips are utilized. As all men have the same biological structures, they are able to produce any of the sounds that are found in a language. A normal child reared in a given culture encounters no problems in learning the language of that culture. If he sets out to learn a second language, he frequently has difficulty pronouncing sounds that are not found in his native language, but with practice and persistence he may reproduce the desired sounds.

Origins of Language

When some people first read about languages, they wonder how and when language originated. Unfortunately, no one really knows nor are we ever likely to know. We do know that man lived on earth thousands of years before our earliest written records. No one has ever found a group of people living anywhere who have not developed an adequate language system to communicate with one another. As a result, we can merely speculate about how and when language developed.

Before the twentieth century a number of persons developed interesting ideas about the origin of language. Unfortunately, there was no way to test these theories by scientific study. Because such speculations cannot be tested, the modern scientist regards them as having little value. Today's linguists do not concern themselves with guesses about something that they can prove neither right nor wrong.

Many Languages Exist

At present it is estimated that there are several thousand languages employed throughout the world. No one knows the exact number. First, no one has visited all of the people who live in the world and classified all of the languages spoken.

Such a task would require the efforts of many researchers. More important, however, is the difficulty encountered in identifying a language as something completely different from some of its dialects. A *dialect* of a language is a variation of the language. Some dialects seem so different from the basic language as to warrant being thought of as a separate language. In other cases, the dialect is readily identifiable as related to a major language, although some words may have been introduced and others pronounced differently.

Dialects result when a language is shared by many people who have limited contact with each other. English and Chinese, each spoken by millions of people, have dialects because local speech variations have developed and persisted. In the United States, for example, there are easily recognizable differences in the speech of a New Englander and a Southerner. Some dialects, reflecting social class differences, are so pronounced that both learning and full participation in the culture are impaired. Examples of such severe *dialect deviation* are the speech of many rural Negroes and of mountain whites from isolated valleys in Appalachia.

It is known that certain languages which were once used by thousands of people no longer exist. One so-called "dead" language is Latin. The term "dead" language, however, is probably not an appropriate one for describing what occurs when a civilization and its language seem to disappear. Often the language undergoes certain modifications and continues to be used. Latin, for example, influenced such Romance (from "Roman") languages as Italian, French, and Spanish. Hebrew survived for centuries as a language for religious services and writing. Recently, it was revived as an official language in the new country of Israel. Mayan, which was once spoken and written by the members of a great civilization, survives as the everyday languages of many Indians in Central America.

A Definition of Language

So far we have discussed language in a broad manner. Now we shall discuss language in a more specific way. Perhaps the best approach is to define language. Here is a working definition. *Language is an arbitrary system of vocal signs used by men to communicate with one another.*

When we say that language is an *arbitrary system*, we mean that the sounds used in speaking have meaning only because men have agreed that a certain sound means a specific thing. It is through continued usage that meaning becomes established. Perhaps Shakespeare had this in mind when he wrote that "a rose by any other name would smell as sweet." If we called a rose by some other name, that word would become associated with all of the beautiful and pleasant characteristics of the flower we now call a rose. If the name of the rose were *stinkweed*, we would think of a beautiful fragrant flower when we heard the word, *stinkweed*. We might even have a perfume called *Stinkweed*. Sounds and the way they are put together in any language have meaning for people who speak the language because over long periods of time their meanings were agreed upon by chance and custom. The meanings of sounds are thus arbitrary.

Another word in our definition that needs explanation is *system*. System refers to the way something complex is organized or the way parts are related to the whole. Biologists, for example, speak of the digestive system to describe the way

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the stomach, liver, pancreas, and intestines work together. A language is also complex, but the parts are related in a definite systematic manner.

The order in which words are commonly used in a language is one example of the relationship that words have to each other. In our language, for example, the subject in a sentence usually precedes the predicate. The sentence, "The man rode the horse," makes a clearer statement than "Rode the man the horse." Similarly, in English we usually place adjectives before the noun or pronoun they modify. For example, we speak of a large dog rather than a dog large. Not all languages follow the same organization. Just as linguists investigate the meanings of sounds in languages, they carefully study the system or structure of languages.

Another word in our definition that has special meaning is the word *sign*. By signs we mean the symbols or sounds used to convey meaning. If I were to say to you, "The glub-glub sabbed the blom-blom," you would not understand what is said. If, however, you were told that "glub-glub" means boy, "sabbed" means ate, and "blom-blom" means watermelon, you could understand what has been said. In any language there are signs and symbols which must be understood by both speaker and listener for effective communication. Some people refer to language as a code. Like any other code, both the sender (speaker) and receiver (listener) must understand the nature of the symbols used and their meanings; otherwise, information cannot be exchanged.

It should be noted that we stated, "Language is an arbitrary system of *vocal* signs...." The word *vocal* is important because all languages develop in oral form. Men produce different vocal sounds to communicate with each other. It takes many hundreds of years for language to make a transition from an oral state to a written form. In fact, many languages exist only in an oral form, and the people who speak these languages have never developed adequate written systems.

None of the North American Indians had a written language before European contact. Some of these languages developed written forms after European influence. Sequoya took the idea of writing and developed an alphabet for the Cherokee. In other cases, Europeans prepared a written form of language, such as Navaho. Thus, today Navaho school children can learn to read and write their native language.

Some Characteristics of All Language

We have defined language as an arbitrary system of vocal signs used by men to communicate with each other. We also have tried to explain what is meant by the definition. Now we shall try to summarize the most important facts about language.

First, our definition can be used to describe any of the languages of the world. Like most definitions, however, it fails to explain all that one should know about language, as you will discover in the next chapter.

Second, it is important to realize that all languages originated and developed in oral form. In any language the way people speak is a better index of the language than the rules that apply to a written form. Every language has a limited number of vocal sounds used to convey meaning. No language contains all of the sounds that men are physically able to produce. All languages contain vowel sounds. Identical sounds may be found in different languages. Often, however, the same sounds will not have the same meanings.

Third, regardless of the language they speak, men use the same organs of the body for speaking. Similarly, all men have the same organs for listening. Because men have a common organic structure, any normal person can, with effort, learn the language of another.

Fourth, each language has a definite structure of pattern by which sounds are put together. The patterns are orderly and identifiable. Structural linguists spend considerable time studying the patterns or rules of a language. Most linguists, in fact, consider the structure of a language to be at least as important as the meanings or contents of the sounds expressed.

Fifth, all languages change with time. As we mentioned previously, the English language we speak today is different from that spoken by Englishmen four hundred years ago. The most significant changes take place in oral forms of languages. However, one can get some idea of how English has been modified by comparing the same chapter and verse of a selection in the King James version of the Holy Bible with one of the recent revisions. In the King James version Matthew 6:34 is written: "...Take no thought for tomorrow...." The Revised Standard Edition of the Bible gives the same verse in more modern language: "...Be not anxious about tomorrow...." The reasons that languages change are fascinating and will be discussed in detail in a later chapter.

Summary

Although many animals can communicate with each other, only men have genuine language. Language is complex. Language is an arbitrary system of vocal signs used by men to communicate with one another. Although there are thousands of languages employed by men, the organs used to produce language are identical regardless of the language spoken. Any normal person can likely master any language employed by any group of people. Two features of language are important. One feature deals with the content of the language or the meanings which can be expressed through it. Another equally important feature of language is its structure or organization. Many different organizations or structures can be found in the different languages of the world. In order to communicate effectively anyone who uses language must have knowledge of the contents and the structure of his language. Finally, languages continually change, just as do the cultures of men.

ACTIVITIES AND EXERCISES

1. Explain why linguists prefer to study oral rather than written language.

2. Secure a copy of a work by Milton or Chaucer and examine the language used by the author. Try to read selections aloud to the class. What differences do you note from the language found in your other textbooks?

3. Listen to the tape recording of people speaking a language other than English. Can you find evidence about the structure and contents of the languages to substantiate statements made in this chapter?

4. Invite someone who speaks more than one language to visit your class and explain the differences between the languages he speaks.

5. Compare the Morse Code or some other well-known code with the English language. How are they similar? How do they differ?

6. "Flipper" is a popular television show which shows Bud and Sandy talking with a porpoise. Can Flipper understand the boys? Can the boys understand Flipper? Give the evidence for your answer.

7. Have you ever tried to learn a foreign language? How did you go about learning it? Did you find some of the words the same as, or similar to, English? Were words containing sounds not found in English more difficult than words in which you used only familiar sounds? Why was this?

8. If all you have ever read about language is in this lesson, how would you explain the origin of language? What reasons would you give for speculating the way you do? Could you test your explanation? Why?

9. Listen to a recording of regional dialects in the United States. Can you understand what is being said? Are such differences a barrier in communication?

   Now listen to the extreme dialectical deviations given in *Uncle Remus*. Do you have difficulty understanding what is being said? Is there a barrier to communication? What difficulty would you expect children learning such dialects to encounter when they go to school? Why do you think that some people advocate teaching English as a "second language" to children and adults with extreme dialectical deviations?

10. Can you give an example of how Latin, a so-called dead language, influences our speech today? Clue: How do we get new words? Look up the origin of *vitamin*.

11. Can you illustrate, from two different languages, what we mean by the definition, "Language is an arbitrary system of vocal signs used by men to communicate with one another"?

    Here is an example. You are in a restaurant in London. You want to get your check. What do you say? You might say, "Waiter, please bring me the check." Now suppose you are in Paris. You might say, "Garcon, l'addition, s'il vous plait." ("Gahr-sohn, laadisiohn, see voo play.")

Why do we call a certain kind of animal *dog*, and the French call the same animal *le chien*? Why do we say *God*, and the Arabs say *Allah*?

12. The following letters go together to form the words of a well-known proverb. Each letter is coded to stand for another letter; for example, an "a" might represent an "e" in the code. See if you can break the code.

"O EPMQ PC IWB WOCQ PZ FTMIW IFT PC IWB EDZW"

Key:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		E	R	Q	B	X	N		P		V	L	U		T	G	S				D	Y	F		J	H

13. Make up a code. See if members of your class can decipher the code. Why do you think that some anthropologists describe language as a code? If you think of language as a code, why do some people say that writing is encoding and reading is decoding?

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Chapter Four

how scientists study language

It is estimated that several thousand different languages are used by the men who inhabit the world. Some of the languages are shared by merely a few hundred persons while others are spoken by hundreds of millions. The scientific study of all of these languages requires special knowledge and skill and is the concern of the *linguist.* A linguist is a scientist who studies languages,and linguistics is the science of language study. In this chapter some of the ways a linguist studies language will be described.

Basic Considerations in the Study of Language

Basically, three major considerations interest the scientist who studies language. First, he is concerned with the *phonology*, or sounds, used by people who speak the language. Second, the linguist is interested in the *semantic* content, or the meanings that the sounds convey. Third, the linguist also is interested in the *syntax* of language. Syntax is the study of grammar, or the rules which organize words into clauses and sentences.

Phonology is usually divided into two areas. One part deals with *phonetics* which is the study of all possible sounds which humans can produce vocally. *Phonemics*, the other part, deals with the sounds employed in a specific language.

All languages utilize a limited number of sounds called *phonemes*. Phonemes, for the most part, are vowels and consonants, but have no meaning in themselves. No language uses very many phonemes, or anywhere near the number and variety of sounds man is able to produce. Generally, the languages of the world have been found to possess somewhere between fifteen and eighty-five phonemes. English has forty-five different phonemes.

In all languages the phonemes are used in patterns or combinations. These units are called *morphemes*, and each morpheme has a special use to help convey meaning. In English one or more morphemes form a word. Therefore, English uses fewer than fifty sounds to build over 100,000 words, each with its meaning.

A helpful analogy might be to think of the phoneme as being similar to an atom and the morpheme as resembling the molecule. Phonemes are the smallest sound units in a language. Certain combinations of phonemes combine to make morphemes, or words which have meaning. Words, of course, are structured into sentences when we speak.

Oral Language Is Studied

Previously, it was stressed that all languages develop in oral form. In fact, a number of languages fail to develop adequate written forms. Even when a language develops an adequate system for written notation, there is likely to be considerable difference between the written symbols used and the sounds they represent. In the English language the twenty-six letters of our alphabet must be used to represent

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the forty-five phonemes, or sounds, used in the language. This is one reason why some American and English school children have difficulty in learning to read or spell. Also, regional variations may differ from pronunciation rules found in their textbooks. A phonics rule may dictate that the *i* in *ink* be pronounced as a short *i*. But in the Southeast most people say *enk*. Another phonics reader calls for the *e* in *engine* to be pronounced *ĕngine*. But Southerners say *ĭngine*.

The lack of agreement between the use of certain letters in written English and the sounds they represent in oral English can be demonstrated easily. Think of the different sounds represented by the letter *o*. If you pronounce each of the following words which contains the letter *o*, you can readily see that the written *o* represents a number of different sounds: do, dove, go, not, woman, women.

Another example is one used by a famous linguist who used to entertain his students by demonstrating that it was possible in English for ghoti to have the same pronunciation as fish. In this case, gh stands for the f sound in laugh; o stands for the i sound in women, and ti stands for the sh sound in ambition. Thus, ghoti sounds like fish.

In order to avoid the lack of sound-symbol correspondence in writing, linguists prefer to study oral language whenever possible. In addition, many important facts about language can be discovered only by the study of oral speech. By studying the speech of native speakers of a language, the linguist can discover which sounds are stressed, slurred, blended together, inflected, and elongated. A study of written language cannot provide the linguist with this type of information.

Phonetic Transcriptions

In studying any language the linguist prepares a careful written record of the sounds and patterns of the language. Many linguists now use tape recordings to capture the speech of native speakers and then prepare their written records from their recordings. In this way, they can check the validity of their transcriptions. We have said, however, that written forms of a language usually lack correspondence between the oral and written symbols. How then does the linguist deal with the problem? In order to record what he hears, he uses a special alphabet which is more complex and accurate than the one with which you are familiar. One of the most commonly used systems for recording speech sounds is the phonetic alphabet developed by the International Phonetic Association. The alphabet shown on page 24 includes only those notations for sounds heard in English. There are other sounds which are found in other languages not listed here.

The IPA alphabet, as this alphabet is called, enables the linguist to relate speech sounds to the position of the speaker's lips, tongue, teeth, and other organs of speech. It is considerably more refined than any ordinary alphabet. By using the IPA alphabet, a skillful linguist is able to record not only the vowel and consonant sounds he hears, but also to note differences in stress and the length and pitch of sounds. He can observe the position of the speaker's tongue, how the speaker breathes while producing sounds, and many other significant aspects of speech. Thus, the linguist is able to record speech sounds accurately and to study them carefully. Later, he can check his findings by reading aloud his notes to those who speak the language he studies. Thus, he can check the accuracy of his phonetic transcription. He can also study a given language in depth to determine the rules

IPA ALPHABET

IPA SYMBOL	SOUND	IPA SYMBOL	SOUND
æ	at	ɔ	raw
eɪ	ate	u	boot
ɛ	bet	ʊ	pull
ɑ	cart	ɔi	toy
b	bat	aʊ	out
tʃ	check	p	pot, top
dʒ	do	r	rock, borrow
i	see	s	see, toss
f	fat	ʃ	ship
g	go	t	top
h	hit	θ	thick
ɪ	it	ð	the
aɪ	pie	ʌ	stuck
d	just	ju	you
k	keep	ɜr	her
l	let, ball	v	vain, ever
m	man, ham	w	wish
n	name, can	j	yet
ŋ	tank, sing	z	zone, has
ɒ	top	ʒ	azure, vision
oʊ, o	so	ə	about, likable

PHONETIC TRANSCRIPTION OF "Twinkle, Twinkle, Little Star"

GENERAL AMERICAN	EASTERN - NEW ENGLAND	SOUTHERN
[twɪnkl twɪnkl lɪtl stɑr haʊ aɪ wʌndə whʌt ju ɑr ʌp əbʌv ðə wɜld so haɪ laɪk ə daɪmənd ɪn ðə skaɪ]	[twɪnkl twɪnkl lɪtl stɑ haʊ aɪ wʌndə whʌt ju a ʌp əbʌv ðə wɜld so haɪ laɪk ə daɪmənd ɪn ðə skaɪ]	[twɪnkl twɪnkl lɪtl stɑ haʊ a wʌdə whʌt ju ɑ ʌp əbʌv ðə wɜld so haɪ laɪk ə daɪmənd ɪn ðə skaɪ]

that govern its sound system, compare the sound systems of different languages, study differences in dialects, and analyze the oral language patterns of persons who speak substandard speech

One way the linguist might use the IPA alphabet is to study dialectic differences in pronunciation. On page 24 there are three examples of phonetic transcriptions of the nursery rhyme *Twinkle, Twinkle, Little Star*. The first speaker has a general American dialect, the second is from New England, and the third has a Southern accent. What differences and similarities can you find?

The Content or Meanings of Language

The linguist also is interested in the semantics of a language. Semantics in this instance means the study of word formation and meaning in a language. The range of meanings or the content of any language provides the best method for studying the culture of those who use the language. A language that contains many words about religion usually belongs to a culture where religion plays an important role in the lives of those who use that language. In the Catholic and Episcopal churches, where there is considerable ritual, many more words are necessary to represent the various articles of dress of the clergy, the ornamentation in the sanctuary, and the parts of the religious services.

More technologically advanced people have a greater number of words representing technology than do those who reside in a more primitive manner. Language actually reflects the cultural system under which men live. The careful study of the content system of a people's language probably provides a cultural anthropologist with his best insights into the knowledge of the group, their values, systems of belief, and technology.

Types of Linguists

From our discussion so far, it should be apparent that linguistics, the scientific study of languages, is extremely complex. No single linguist can hope to be an expert in all aspects of language. Typically, the linguist limits his study to a certain area of linguistics. For instance, he might specilize in Germanic languages or in certain African languages.

Perhaps his major interest is the comparison of similarities or differences in certain languages. Such men are called *comparative linguists*. Another linguist might be primarily interested in studying the development and changes that have taken place in one or more languages throughout time. He is called an *historical linguist*. As a child you may have read Grimm's *Fairy Tales*. Jacob Grimm was a famous historical linguist who spent most of his life studying the way the German language developed and changed.

The descriptive or *structural linguist* analyzes the structure and sound systems of a language so that he can understand both the nature of the sounds produced and the meanings attached to the sounds. In previous years the linguist probably was more interested in the syntax of language than he was in the meanings conveyed by language.

Regardless of his special interests, the linguist is a scientist who uses the methods of science in studying language. He works carefully because the possibility of error is great. He must be well trained. It should be readily apparent that a linguist is not simply someone who speaks several different languages.

Structure of Language

The use of the two concepts of phoneme and morpheme provides a basis for all linguistic study.

The phoneme is the term given to a basic or fundamental sound found in the language. As mentioned previously, there is a limited number of phonemes found in any language. It may be helpful to think of the phoneme as the basic unit of sound which exists in a language. By studying these sounds individually and analyzing the way in which they are combined, linguists discover the basic sound system of a language. No language makes use of all of the possible combinations of sounds that can be made.

One interest of the linguist is to discover how and when sounds are combined and used. Sometimes the same sound is used in a number of different ways. In English the *g* sound is different when used in words like *go, edge,* or *gem*. It requires many hundreds of hours of careful and painstaking work to discover the rules that govern the use of sounds in any language.

Just as he studies the sounds found in a language, the linguist is interested in how the sounds are put together to convey meanings. The phoneme then is a unit of sound, and the morpheme may be thought of as the smallest portion of an utterance that conveys meaning. Some morphemes may stand alone as words and others must be used in conjunction with other morphemes. Thus, we have *paint*, a morpheme, whose meaning can be changed by adding other morphemes as in *painted, painting,* or *painter*.

Another example of a morpheme is the word *thought*; as a whole it has meaning. If it is divided, we obtain fragments which have no meaning in themselves. There are three phonemes or sounds in thought which when written in the phonetic alphabet look like this: (θ ɔ t)

The word *thoughtful* is made up of two morphemes. It may be divided into *thought* and *ful*. Each piece has meaning and the meaning of the combination is related to the meanings of the two pieces.

A morpheme is not the same as a syllable. The morpheme *thought* happens to be a single syllable as are many morphemes in English. *California* is a single morpheme though it contains five syllables. Both *cat* and *s* in *cats* are morphemes even though together they are a single syllable. A morpheme may consist of only one phoneme (sound). The *s* in *cats* is such a case. Most morphemes in English consist of from two to six phonemes. The *s* added to *boy* means "plural." The *ed* added to *walk* means "past tense."

The way morphemes are used in groups becomes the grammar of a language.

Language Families

Although it has been pointed out that the origin of language is not known, it is apparent that languages change with time. The nature of language change will be described in the following chapter. However, a language may be altered when those who speak the language come in contact with men who speak a different language. It may change as conditions in their lives change. Historians have long noted that some languages seem to be closely related. In other comparisons there may be little or no relationship. By studying the phonology and morphology of languages, linguists know that French, Spanish, and Italian have developed from Latin, and that English, Dutch, German, Swedish, Icelandic, and Norwegian developed from an older form of German. Such relationships have been used to classify the various languages of the world into *families*, or groups which are thought to stem from certain parent languages.

The languages that most Americans are most familiar with, including those of Europe, are thought to have originated from a language called Indo-European (Indo-Hittite). No one knows exactly where the Indo-European language originated, but it is generally thought to have developed somewhere in Asia. The Indo-European language is considered extremely old and presumably was a well-developed language long before the days of recorded history, that is, prior to the time men learned to write. The language we speak, therefore, is influenced by men who lived hundreds of thousands of years ago.

Most of the important language groups have been identified and classified by linguists. You will find these languages listed below by geographical area.

Europe and Asia

Indo-European
Finno-Ugric
Ural-Altaic
Dravidian
Sino-Tibetan
Japanese-Korean
Kadai
Austro-Asiatic
Malyo-Polynesian

North and South America

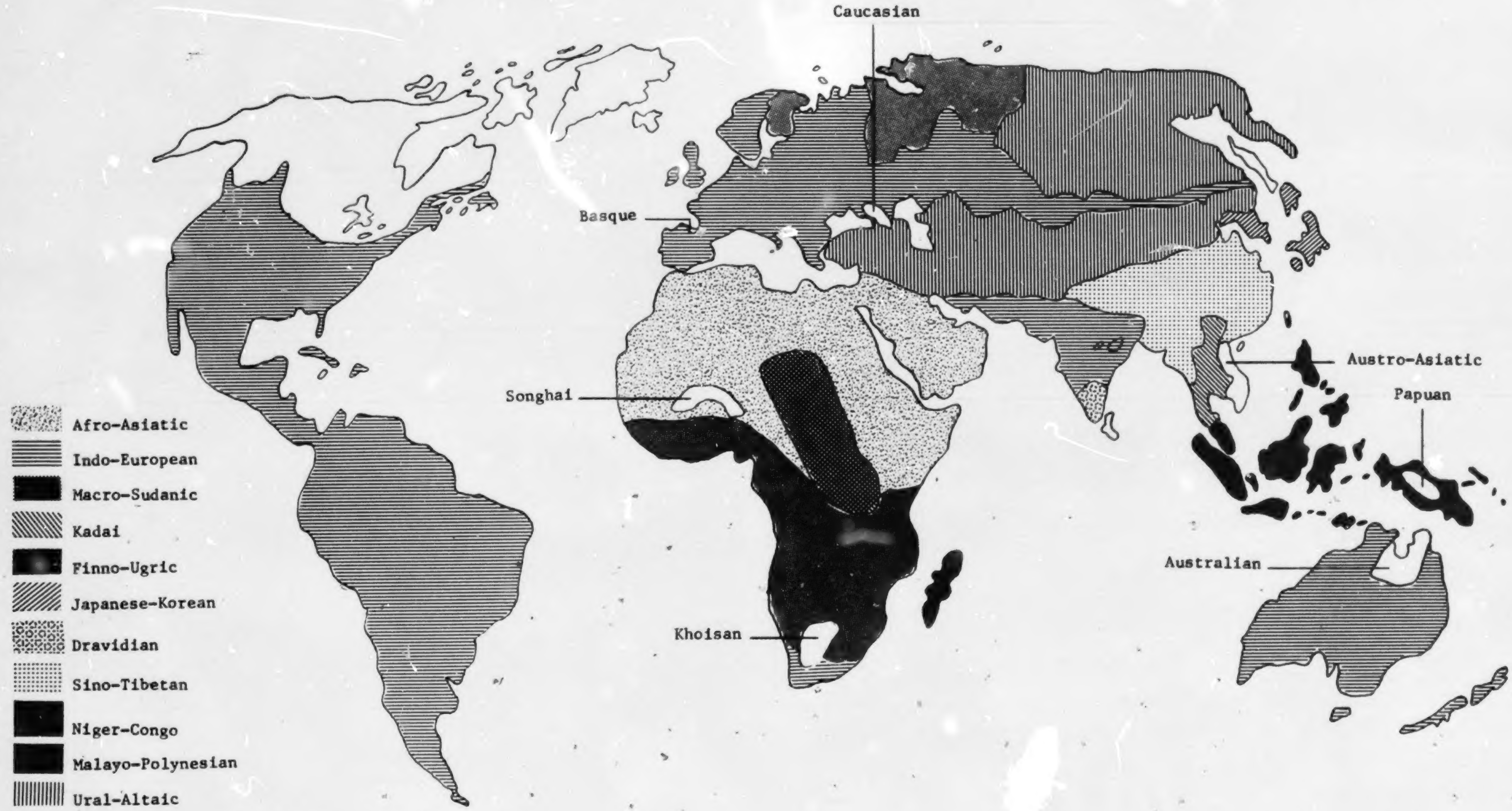
Indian Languages

Africa

Afro-Asiatic
Songhai
Macro-Sudanic (Nilo-Saharan)
Niger-Congo
Khoisan

Isolates (classification uncertain)

Caucasian
Basque
Papuan
Australian


Caucasian
Basque
Austro-Asiatic
Papuan
Songhai
Australian
Khoisan
Afro-Asiatic
Indo-European
Macro-Sudanic
Kadai
Finno-Ugric
Japanese-Korean
Dravidian
Sino-Tibetan
Niger-Congo
Malayo-Polynesian
Ural-Altaic

* Indian Language, the indigenous language of North and South America, is still spoken extensively.

Summary

The study of language is complex. The scientific study of language is called linguistics, and scientists who study language are known as linguists. The linguist is interested in two important aspects of language. First, he is interested in the phonology, or the sounds that comprise a language. The number of sounds found in any language is limited. Second, the linguist is concerned with the meanings that a language can express. He uses the concepts phonology, morphology, and semantics to investigate a language. Typically, the linguist prefers to study oral speech because it furnishes more exact information concerning the nature of a language. The linguist generally studies language by use of a special alphabet, such as that developed by the International Phonetic Association. IPA enables him to record speech sounds with greater accuracy and precision than do other forms of encoding.

Linguists tend to specialize in their efforts. Historical linguists study the ways a given language or group of languages has developed through time. Comparative linguists study the relationships between languages. Descriptive or structural linguists study the basic rules by which a language is organized. All linguists, however, are concerned with the sound system and the meanings that can be expressed in a language.

The culture of men changes. So does their language. The way in which language is modified and the forces that alter it are discussed in the following chapter.

ACTIVITIES AND EXERCISES

1. Try to identify sounds that are found in other languages that are not used in speaking English. (Such as "click" sound in the Khoisan language of Africa's Bushmen and Hottentots.)

   A click is produced by drawing the tongue downward from the roof of the mouth to produce a vacuum and releasing rapidly. The African folksinger, Miriam Makeba, uses this "click" in her folksongs. One of her records is *The Magnificent Miriam Makeba*, Mercury, SR 61082.

2. Can you identify all of the phonemes in English when you hear them?

3. Make up some simple sentences to illustrate how word order and inflection can change the meaning of what is said.

4. Show how the speaker's tone of voice can change the meaning of what he says. Use the following statements, then make up your own:

   a) Please, Mother, I'd rather do it myself.
   b) Of course I love you, dear.
   c) But, Miss Jones, you know how I love algebra.
   d) John, come here.
   e) Please don't do that.

5. Homonyms are words that sound alike but have different meanings. Make a list of common English homonyms. How does one tell which word is meant when he hears it? (Did you ever watch Captain Kangaroo's *Homin Family*?)

6. Look up the following commonly used words in an unabridged dictionary. Try to discover how many meanings each word has.

keep
read
think
stick
know
bat
step
land
iron
dry
leave
book
cross
work
dust
take
drum
issue
it

7. Pronounce the name "Jaime" in Spanish. This is the word for "James." It is pronounced like "Highm-ay." Pronounce the word "George" in Spanish. It is spelled the same as "George" in English. But it is pronounced "Hor-hay." The *g* and the *j* in Spanish have a sound called the *jota*. This is a guttural pronounced in the throat. It is difficult for us to say it, because we do not have any equivalent sound in English. Arabic, on the other hand, has an equivalent sound. Do you suppose Arabs could pronounce "Jaime" more easily than you? Why?

8. Say the word "pop." How did you hold your lips and tongue at the beginning of the word? At the end of the word?

   Now say the word "pope." How did you change the shape of your lips at the beginning and end of the word?

   In English we speak of short vowels and long vowels. Say these and see where your lips, tongue, and mouth are while pronouncing the words?

   bad - bade
   hop - hope
   bit - bite
   pet - Pete
   dun - dune

9. Anthropologists frequently refer to people who have a simple technology and who do not have a written language as "preliterate," even though they may have a very complicated language. Do you suppose that there is any relationship between the level of the technology of a people and the presence or absence of writing? Explain your answer.

10. Secure a copy of Lewis Carroll's "Jabberwocky" in *Through the Looking Glass.* Have someone read this to the class. Can you understand the language? Try assigning meanings to the unknown words. What happens?

11. Hold a lighted candle in front of your face. Say the words *push, pull.* Now say the words *dog, dig.* What differences do you notice in the candle flame?

12. Look up the Cherokee syllabary. How does this differ from our alphabet? How does it differ from Egyptian hieroglyphics?

Chapter Five

languages are always changing

A favorite theme of writers is one in which a modern man, through some accident or scientific invention, breaks the time barrier. In such stories the hero either visits future civilizations or goes back in time to visit the societies of the past. Typically, the hero has no difficulty communicating with those who live in either the past or the future. If, however, it were possible for someone to relive the past or to visit future cultures, modern man likely would have genuine difficulty in making himself understood and in understanding the inhabitants of the civilization he visited. The reason communication would be difficult is that language is subject to continual change and modification.

Anthropologists have found that any culture changes with time. Inventions, discoveries, war, increased trade, new problems and challenges, all serve to change and modify the way people live. Because language is an inseparable part of culture, forces of change in a culture cause language to change. Any language employed by men, then, is forever changing and continually modified. Some changes occur slowly over many years; others seem to take place rapidly. As might be expected, however, changes in the sound system or number of phonemes used take place more slowly than changes in the language content or meanings. The grammar of a language or the way in which sound systems are combined into larger units also changes with time. One of the important contributions of the historical linguist is to identify the changes in a language and determine what factors caused the modifications.

Inventions and Discoveries

One significant use of change in language results from improved technology. Usually any successful invention adds a number of new words to the vocabulary of a language. One hundred years ago people who spoke English did not use words such as telephone, radio, automobile, zipper, or jet. As these inventions were developed, they needed names. As their use became widespread, the names used to identify them also became widely used. The vocabularies of many languages used by men have been greatly enriched in the past fifty years because of technical inventions. The label or name given to an invention, however, is rarely the important impact the invention has on language. When an invention such as the automobile of the airplane becomes widely used and plays an important part in the lives of many people, hundreds and even thousands of words are either invented, borrowed, or adapted to describe events related to the use of the invention. If the use of the automobile had not become widespread, it is unlikely that we would have much use for words such as motel, freeway, super highway, gasoline, self-starter, safety glass, and hub cap.

Scientific discoveries also have enriched language. As elements were discovered, names such as oxygen, nitrogen, and uranium were introduced. As medical researchers identified the diseases that attacked man, words like measles, typhoid, and whooping cough became widely used. In some cases the original name was even shortened: tuberculosis became widely known as *T.B.* and poliomyelitis was shortened to *polio.*

A reverse trend also can be demonstrated. Certain words used to label objects which no longer are widely used tend to drop out of a language. The word flintlock was used in frontier days to describe a flintlock rifle. Today rifles are made which use cartridges, and the word is rarely heard. Around World War I and until shortly before World War II, most children were familiar with the words dirigible and Zeppelin. These words were employed to describe a particular type of lighter-than-air craft. Because these aircraft have been replaced by safer and more efficient aircraft, most young children of today are unfamiliar with the words. An unabridged dictionary contains many obsolete or rarely used words.

Invented Words

Whenever a new invention or discovery affects people's lives, words must be introduced to describe or label them. Sometimes the inventor of the device makes up a name that becomes widely used and becomes part of the language. An American manufacturer developed a camera he called a *Kodak*. The name became popular along with the product. In some parts of the world the name *Kodak* is synonymous with camera. Alexander Graham Bell, who invented the telephone, combined two Greek words, *tele* meaning "far" and *phone* meaning "sound" or "to call." He called his invention a telephone. Today the same word is used for this instrument, not only in English, but in many other languages as well.

There is a whole new word source which has become popular in the twentieth century. A word made up of the first letter or letters of a special series of words or terms is called an *acronym*. The underscored letters in the following examples are the ones used to make up the new word. *Radar* comes from radio detecting and ranging. *Sonar* is derived from sound navigation ranging. Our Armed Forces frequently refer to branches of their services as MATS, SAC, or ARS, rather than Military Air Transport Service, Strategic Air Command, or Air Rescue Service, respectively. The members of a new school organization will probably try very hard to choose a name which can be reduced to an acronym.

Often new words are devised by adding prefixes or suffixes to words which already exist in the language. Prefixes are letters or syllables added to the beginning of a word to modify its meaning. Disadvantage, outcome, income, unfamiliar, and preoccupied are examples of words which have been derived by the addition of prefixes. A suffix may be thought of as the opposite of a prefix. Suffixes are letters or syllables added to the end of a word in order to modify meaning; the following are examples: driver, contentment, comfortable, and previously.

Borrowing of Words

As people who speak one language come in contact with those who employ a different language, the language of each group is likely to be influenced. Generally, words are exchanged or borrowed. English has such rich content partly because those who have used the language came in contact with many other people over a long period of time. We have already referred to the thousands of words that English has borrowed from other languages. *Canoe* and *moccasin* were originally American Indian words, and *tea* was Chinese.

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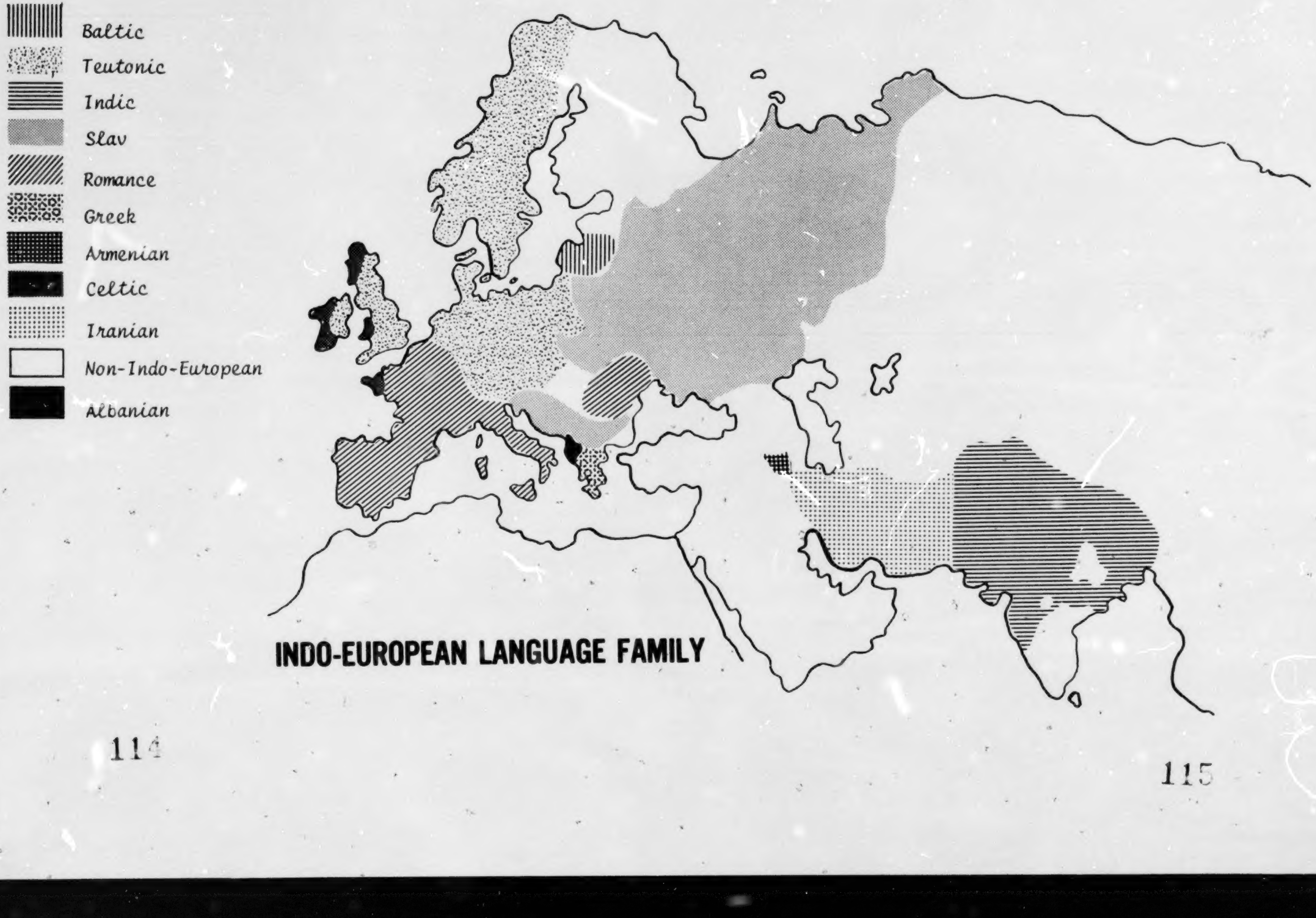


Baltic
Teutonic
Indic
Slav
Romance
Greek
Armenian
Celtic
Iranian
Non-Indo-European
Albanian

INDO-EUROPEAN LANGUAGE FAMILY

The modern English we speak has resulted from a fusion of Anglo-Saxon which was spoken by the Germanic tribes which invaded the British Isles in the fifth and sixth centuries and Norman French spoken by the Normans who conquered Britain in the eleventh century. Our language contains many words which were originally Anglo-Saxon, but it also has many French words introduced by the Normans.

Commerce, trade, war, and conquest among people are likely to speed up the exchange of words. Sailors who visit foreign countries return home with products from abroad. Early explorers in America returned to Europe with tobacco and maize. Merchants who traded with other nations also were found to learn something of the language spoken by those with whom they dealt. Soldiers who fought in foreign lands or who occupied conquered territories learned words, sayings, and songs which they brought home. After World War I there were not many Americans who did not know about a *40 and 8* (40 men or 8 horses: a boxcar) and *Mademoiselle from Armentieres, parlay-vous?*

A new development within a particular country spawns a whole new vocabulary which is carried unchanged to other countries along with the development itself. The form of dance known as the ballet originated in France in the sixteenth century. Today, regardless of the nation in which the ballet is performed, the names for the various steps remain in French: pas de deux, pirouette, grand jele. There is no attempt at translation because those who use them understand what is meant.

The first composers of music who noted instructions to the performer as to how their music should be played were sixteenth century Italians. They wrote *forte* above the music they wanted to be played loudly, *piano* to mean softly, *allegro* to mean quickly, *largo* to mean slowly. Gradually these Italian words became used all over the world to show how composers wanted their music played.

Many techniques in the visual arts originated in Italy also. Thus, we use the Italian words when we speak of a mural, a painting done on a wall, or fresco, a painting done on fresh plaster.

Pronunciations Are Changed

One way in which language changes is in the pronunciation of certain words. Often when a word is borrowed from another Inaugage the pronunciation is modified so as to be more easily recognized or spoken. The early English anglicized most of the words they borrowed from the Normans. These changes in sound often were accompanied by changes in spelling. The French word for sheep was mouton. The English borrowed the word, but called it mutton.

Often the borrowed word is pronounced so differently that it would not be recognized by a person who speaks the language from which it was originally borrowed. For example, a modern Frenchman probably would not understand an American's pronunciation of words like costume, chauffeur, table, or crayon. Similarly, a person who speaks English probably would not recognize the Frenchman's use of beef steak (bif tik) or hot dog (ot dog).

Not only borrowed words are subject to changes in pronunciation. Often words that have been part of a language for hundreds of years undergo change. Sometimes vowels are pronounced differently. Sometimes the consonants are changed. In other words certain sounds may be added or omitted and even syllables may be dropped. Changes also take place in the way certain sounds are accented or inflected, in the pitch and intonation used by the speaker.

The reasons for changes are often obscure and difficult to understand. Generally, however, the changes take place over a period of many years. People do not suddenly wake up one morning and decide to change their way of speaking.

Word Meanings Also Change

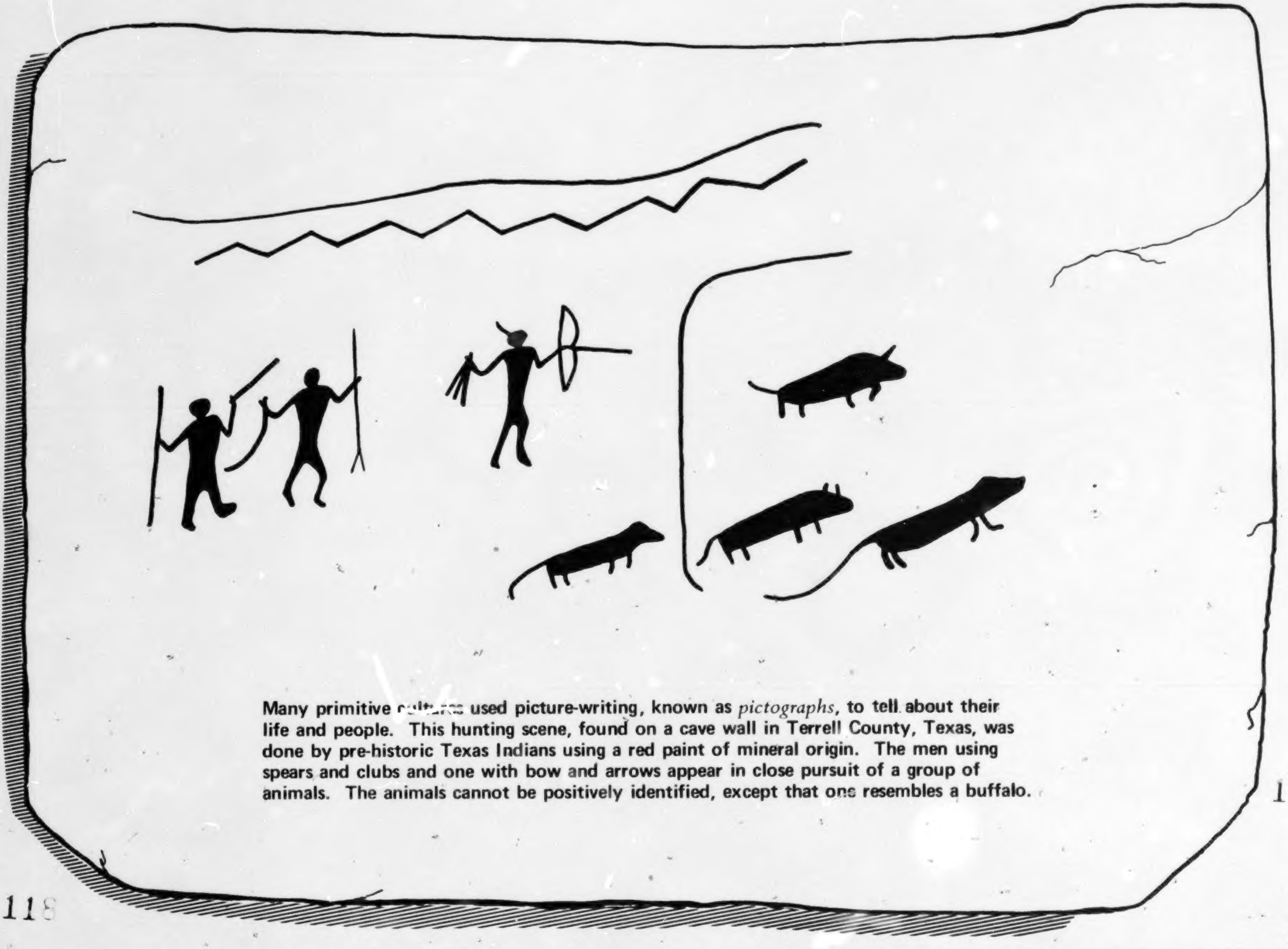
Another fascinating type of change in language is that over a period of years the meanings of certain words may be altered. Not all words, however, change. Some words such as *father* and *mother* have had the same meaning for hundreds of years. Other words change as the lives of those who use them change. Today if we hear someone say, "Last week I flew to London," we are not surprised. We know airplanes fly abroad daily. Fifty years ago this statement would have been met with laughter. Similarly, we no longer think it strange to hear someone say, "I called my friend on the West Coast." We know that the person speaking does not mean that he shouted; he simply meant that he used a telephone.

Changes in word meanings take place in a number of different ways. One type of change is that words may take on a more specialized, narrow, or restricted meaning. The word *meat* once was used to describe any type of food. The proverb, "One man's meat is another man's poison," had a broader meaning at one time than it does today. Today we use meat to denote the flesh of edible animals. Another word that has become used in a more restricted way is *sermon*. Sermon comes from the Latin word *sermo* and originally meant a talk or discussion. Now we almost completely restrict the word to describe the talk a clergyman makes during a church service.

Some words keep their original meaning while they take on additional meanings. The word *read* has acquired many meanings over the years. The word *strike* has multiple meanings, too. Although the process of extending the meanings of words may cause misunderstanding, it serves to keep down the number of words needed to express ideas. In that sense it makes the language more economical and efficient. When a word has a number of meanings, the way it is used in a sentence may provide sufficient clues to aid the reader in understanding its particular meaning.

Another type of change is difficult to trace. Some words seem to disappear from the language, only to reappear years later with different meanings. The word *silly* once meant happy, but now it is used to denote foolish or inane. The word *stink* meant having an odor; the odor might be either pleasant or unpleasant. Now stink is associated with a bad smell or odor. Another example is the word *nice*. Today if someone described us as nice, we would be pleased. Years ago we would probably be insulted because the word *nice* implied foolish or stupid. Unabridged dictionaries give us the old or archaic meaning of words as well as contemporary meanings.

The fact that the meanings of words change with time demonstrates the intimate relationship of language and culture. Just as the customs and social institutions of people change with time, so does language. Although we have discussed changes in the words that make up a language, it is important to recognize that all other aspects of language also change. Obviously, changes in language add to the difficulties faced by historians who try to understand the thoughts and actions of men who lived long ago. The exact meaning of ancient writings is sometimes difficult to understand because



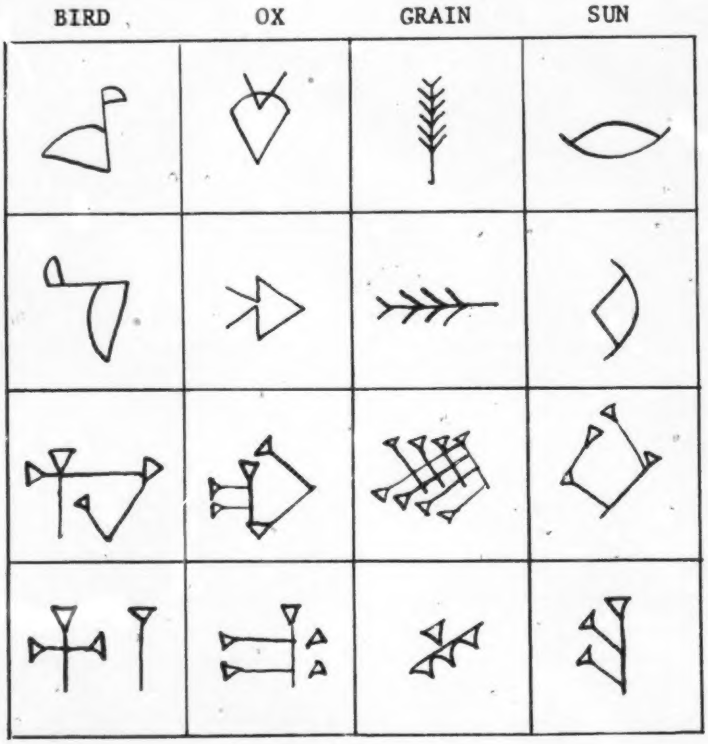
Many primitive cultures used picture-writing, known as *pictographs*, to tell about their life and people. This hunting scene, found on a cave wall in Terrell County, Texas, was done by pre-historic Texas Indians using a red paint of mineral origin. The men using spears and clubs and one with bow and arrows appear in close pursuit of a group of animals. The animals cannot be positively identified, except that one resembles a buffalo.

different words were used. Similarly, familiar words may have had different meanings. Careful study of historical records, however, furnishes important clues to the life and conditions of past cultures.

The Development of Writing

So far we have centered our discussion on changes that take place in oral language. Perhaps the most dramatic change in any language, however, is the development of some type of written form. Not all languages, however, developed writing systems. When Columbus sailed to the New World, the American Indians had no adequate written forms to the languages they used. Similarly, the Arunta of Australia and the majority of African tribes lacked sophisticated means of writing when Europeans first came in contact with them.

Just how languages develop written systems is not known. Some scholars believe that writing and painting or drawing are related. Anthropologists have found that even members of primitive cultures have the ability to paint and draw pictures. It is known that ancient cave dwellers made elaborate drawings. Perhaps such pictures served as aids to the memories of the storytellers of the group or had religious or ceremonial significance.



SUMERIAN THING-SIGNS TO WORD-SIGNS

The ancient Sumerians recorded taxes paid in goods with drawings on clay tablets. The first drawings looked like the grain or oxen brought by the taxpayer, but as time went on the drawings were simplified into wedge-shaped marks so that Sumerian thing-signs became word-signs.

Possibly, certain figures found in these early paintings became so popular and widely recognized that they became symbols. Perhaps the painters of the tribe found certain events so significant that they repeatedly made pictures of these occurences. When painters continued to picture the same events, they became able to simplify the drawings because others were familiar with the scene depicted. Later generations of artists might continue to simplify the drawings. Perhaps, in time stick figures repre-ented men, circles depicted the sun, and other symbols were used to illustrate familiar objects or events. Over many years other symbols may have been developed. Unfortunately, we can only speculate about the origins of writing just as we can merely speculate about the origins of oral language. It is probably significant, however, that art and pictographs, or picture writings, have been found in many different archeological sites throughout the world.

True writing began when pictographs became standardized and became associated with sounds of the language. In early forms of writing the symbols stood for words or ideas. This system is still used in Chinese. Other systems used symbols for groups of sounds, syllables, or individual sounds.

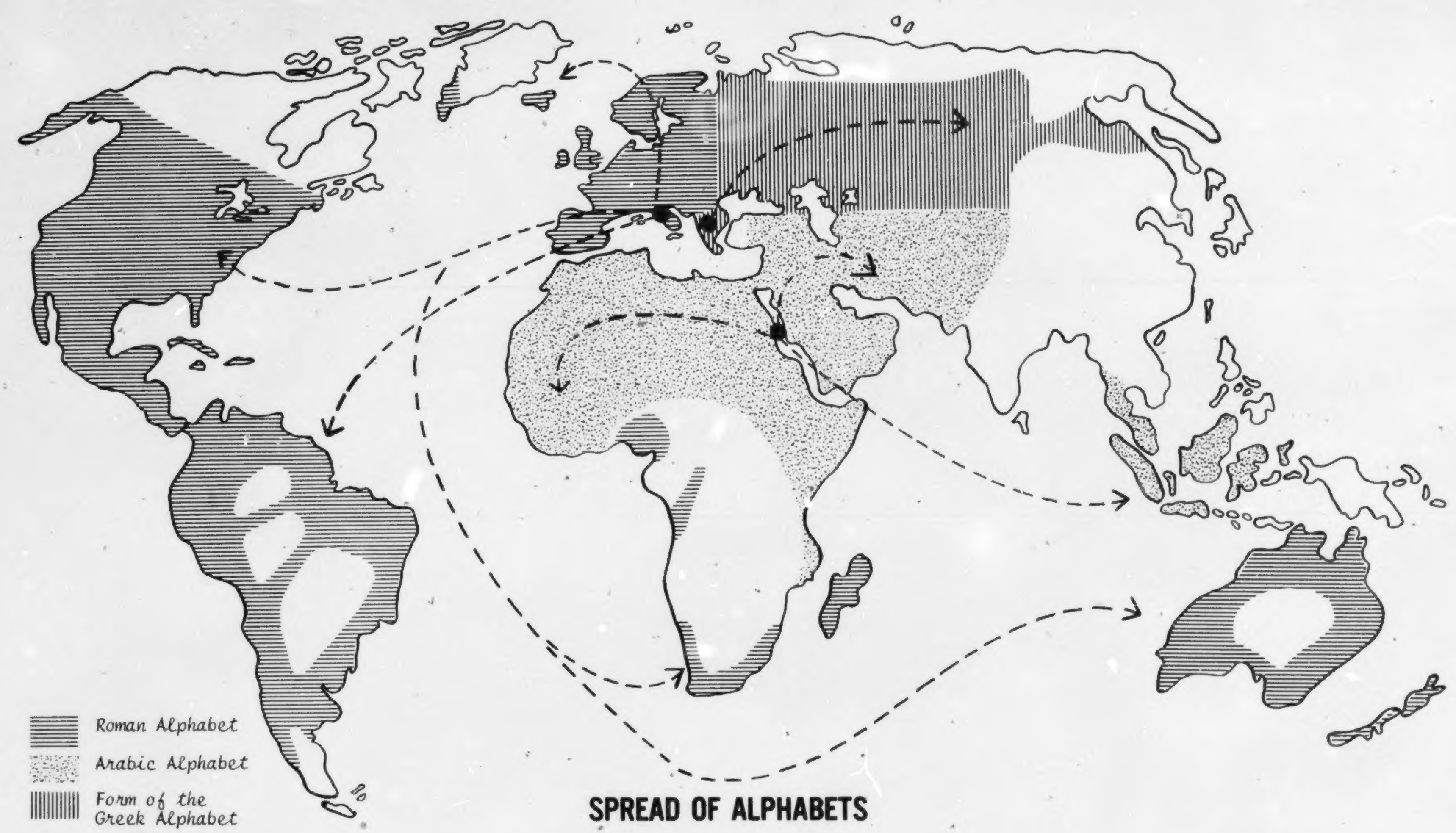
Egyptian hieroglyphics were a combination of symbols and pictographs that stood for syllables. Later the number of characters was reduced to 24, each standing for a single sound. The Phoenicians borrowed the idea and adapted it to their language. The Phoenicians were traders and traveled over much of the Mediterranean shore. The Greeks modified the Phoenecian alphabet and from them it spread to the Romans and to all of Europe.

In the development of writing tremendous strides are made when there are enough symbols to allow a writer to represent ideas as well as objects. The invention of an alphabet facilitates this development. An alphabet consists of a limited number of characters which can be used to represent the sounds of a language. In English we use an alphabet of twenty-six letters or symbols to represent all of the sounds we make while speaking. An alphabet enables man to write more efficiently than with picture writing or pictographs because a limited number of symbols can be used in combinations to represent any number of words and ideas. There is sometimes difficulty, especially in the English language, resulting from a written symbol having more than one sound (such as *c, g,* and all the vowels). But the advantages of alphabetic writing far outnumber its disadvantages. Many anthropologists feel that the widespread acceptance and use of alphabetic writing has been a major reason for the development and spread of Western culture. Writing makes it possible to store knowledge, as in library books, and to communicate over great distances.

Standard Speech

Because language is an important unifying force in society, anyone speaking the language must meet certain standards in his speech if he is to be accepted by others. Individuals with limited vocabularies, or those who violate the rules of the language, often find that they are not accepted or respected. A young man or woman who mispronounces common words is looked upon with a certain amount of disfavor. Violations of rules of grammar also cause embarrassment.

There is no one *standard* American speech. *General American* is the term used to denote that speech pattern usually associated with the mid-west *radio announcer's*


Roman Alphabet
Arabic Alphabet
Form of the Greek Alphabet

SPREAD OF ALPHABETS

GREEK, ROMAN AND MODERN ALPHABETS

GREEK	Α	Β	Γ	Δ	Ε	F	Ζ	Η	Θ	Ι		Κ	Λ	Μ	Ν	Ξ	Ο	Π		Ρ	Σ	Τ		Υ		Φ	Χ		Ψ	Ω	↓
ROMAN	A	B	C	D	E	F		H		I		K	L	M	N		O	P	Q	R	S	T		V			X				Z
MODERN	A	B	C	D	E	F	G	H		I	J	K	L	M	N		O	P	Q	R	S	T	U	V	W		X	Y			Z

pattern. Standard speech for any area, according to most scholars, is the language spoken by the majority of the educated, cultured persons of the speech region. There are three major speech regions in the United States. These are Southern, Northern, and New England.

Standard Speech is simply that use of words--both as to pronunciation and arrangement--which is considered "correct" by the majority of the educated population.

Unfortunately, some children learn inadequate or "incorrect speech" from their parents. A home environment in which correct speech is not used or heard can be a great disadvantage to a member of the family who may wish to improve his speech. As he grows up, such an individual finds that he must learn standard speech (or in our language, "good English") if he is to learn in school or be accepted by the more influential members of his society.

Summary

Language is constantly changing. It is never static, but is continuously modified as man's culture is modified. The organization , as well as the meanings or a language, change with time. Vocabulary is the least stable of all the components of language.

Inventions, scientific discoveries, new ideas, and increased knowledge result in the introduction of thousands of new words. When members of one speech community come in contact with people of other cultures, the language of both groups is likely to be affected. English contains thousands of words which were borrowed from other languages. Change in language also occurs when words which are little used may become lost and disappear from the language. When people no longer need the given word or when they discover a better word for expressing their ideas, they soon abandon the original word. Other words undergo changes in meaning--a fact that makes historical research more difficult.

Not only do meanings in languages change, but the way in which certain words are pronounced may be altered. The structure of a language also may become more simplified and the rules of grammar modified. So many changes have taken place in English, that it is doubtful if a modern man would be able to converse effectively with those who knew and spoke English eight or nine hundred years ago.

An important development in any language is the invention of a system of writing. All languages evolve in oral form. When a language can be written in alphabetic form, those who use it can record their knowledge and beliefs more permanently. The rapid development of European culture has been due in large part to the widespread use of alphabetic writing.

All languages are dynamic, or ever-changing. Even now subtle changes are taking place in our language. The English we speak will continue to be changed and modified. Our great-grandchildren will have words we do not yet have. Some of our favorite words may be used rarely, if at all. As our culture evolves and changes occur, such changes will be mirrored in the language of those who share the culture.

ACTIVITIES AND EXERCISES

1. Show how the following English words have changed in meaning over the years.

    - propaganda
    - swain
    - credit
    - drink
    - find
    - fire
    - swoon
    - just
    - meat
    - drive
    - five
    - flag
    - jam
    - knock
    - lady
    - lord
    - proof
    - sink

2. Examine the written books of authors such as Charles Dickens or Rudyard Kipling. See if you can find examples of dialogues which sound old-fashioned to you.

3. Compile a list of English words that were once commonly used but are rarely heard today. Can you account for their loss in popularity?

4. Compile a list of words and their meanings which junior and senior high school students use in speaking which were not used in the same way by their parents. (For example, "Jim is a cool cat.")

5. Compile a list of common English words for which there are more than one meaning. Check your list with an unabridged dictionary.

6. With other members of the class see how many English words were derived from Latin, Greek, French, German, and Hindi.

7. By using *picture writing* try to tell a simple story to other members of the class.

8. What words were borrowed from other languages in the following disciplines?

    a) architecture
    b) music
    c) science
    d) art
    e) religion

9. Imagine that you have introduced the automobile into a society that had not previously had cars. What words do you think would be borrowed by the people of that group?

10. Explain why it is important for someone to learn to speak the standard language of those in his culture.

BOOK LIST

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Informal retelling of myths and explanation of their usage in English provides a better understanding of words and expressions derived from them.

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A well-balanced selection of 250 words, each given comprehensive one page explanations.

Batchelor, Julie Forsyth. *Communication: From Cave Writing to Television.* New York: Harcourt, 1953. $2.75.
Material about language, postal service, telephone and other communication media related to the child's own experiences and activities.

Buehr, Walter. *Sending the Word: Story of Communication.* New York: Putnam, 1959.

Communication from the earliest cave pictographs to the high speed printing press.

A Dictionary of the Queen's English is a fascinating pamphlet which shows how many seventeenth century English words have been retained in the traditional speech of the rural South and the mountains of North Carolina. This pamphlet may be ordered from: Travel and Promotion Division, Department of Conservation and Development, Raleigh, North Carolina 27602.

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Evans, Eva Knox. *All about Us.* New York: Capital Publications, 1947.
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Evans, Eva Knox. *People Are Important.* New York: Golden Publications, 1951.

Description and comparison of customs and mores in different cultures.

Frasconi, Antonio. *See and Say - A Picture-Book in Four Languages.* New York: Harcourt Brace, 1955.
An illustrated introduction to language with pronunciation guide.

Laffin, John. *Secret Writing through the Ages.* Abelard, W. C. L., 1964.
A comprehensive history of secret writing, including the Shakespearean-Bacon argument, and development of the Morse code.

Ludovici, L. J. *A Science Survey Book.* New York: Putnam, 1965.
Theories and facts concerning the origin and nature of language, with emphasis on the major European languages.

Pei, Mario. *All about Language.* New York: Lippincott, 1954.
The origin, growth and use of language. Includes interesting accounts of development of English slang and dialects.

Rogers, Frances. *Painted Rock to Printed Page.* New York: Lippincott, 1960.
A delightful account of how writing developed.

GLOSSARY

Accent - A stress of voice on a particular syllable.

Anthropologist - A scientist who studies man.

Anthropology - The scientific study of man. "Anthropos" Greek for man or human being, "logy" meaning the study of.

Archeology - The study of a past culture from relics and remains .

Asset - A quality, person, or thing regarded as valuable and useful.

Communication - An exchange of information.

Consonant - A letter or symbol representing one of a group of alphabetic elements, except *a*, *e*, *i*, *o*, and *u*.

Culture - The way of life of a group of people; the way in which a group adjusts to its total setting.

Custom - The habitual or usual course of action; a recognized habit or usage.

Dialect - A language evolved from a root language, having distinct vocabulary and pronunciation while retaining recognizable elements of the parent language.

Ethnic - Pertaining to race or races of peoples as having certain physical, mental, or cultural characteristics in common.

Heredity - Transmission of physical and mental traits from parents to offspring.

Hieroglyphics - Picture-writing, especially of ancient Egyptians.

Intonation - The modulation of the voice in speaking.

Inflection - A change of pitch in the voice.

Kinship - Relationship as by descent from a common ancestor.

Linguist - An anthropologist who makes a scientific study of languages.

Linguistics - The study of human speech including the origin and structure of languages, phonetics, and semantics.

Mores - Customs established by folkways regarded essential by the group for its welfare.

Morpheme - The smallest portion of an utterance that conveys meaning.

Morphology - The science of the forms or structure of a language.

Phonetics - The study and classification of the sounds made in spoken utterance.

Phoneme - A basic or fundamental sound found in a language.

Phonics - A method of teaching phonetics.

Phonology - The study of sound systems of a language.

Prefix - The letter, syllable,or syllables having a certain meaning attached to the beginning of a word to modify or change the meaning of the word, e.g., "dis" as in disagree.

Scientific - Agreeing with rules, principles, methods of science.

Socialization - Regulation according to group's needs.

Species-Specific - An attribute common to a particular species and found only in that species, e.g., language is species-specific to man; web-making is species-specific to spiders.

Speech Community - A group of people who share a common language.

Sub-Standard - Below an established quality or value.

Suffix - Letter or syllable added to the end of a word to modify or change the meaning, e.g., "ful" as in faithful.

Symbols - A conventional sign or letter indicating something.

Technology - All of the means employed by the members of a society to provide human sustenance and comfort.

Vocal - Pertaining to the voice uttering.

Vowel - A letter or symbol representing a voiced speech-sound; in English, *a*, *e*, *i*, *o*, and *u*.